Mental Health of International Students Studying at Canadian Universities

by

Delaram Baghoori

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Abstract

Background. The number of international students pursuing their education in countries with advanced economies has increased considerably. This trend drives the global agenda for conducting more rigorous research for this population worldwide and at the national (Canadian) level. Beyond the general stressors that post-secondary students experience, additional stressors related to being an international student and attending a new academic system in the destination's country's new culture could significantly impact international students' mental health status. However, international students' mental health has received little attention, and there is a lack of literature addressing this issue in the Canadian context. Therefore, this study aimed to investigate the mental health status and factors associated with international students' mental health problems in Canadian Universities.

Research purpose/questions: This study aimed to explore the mental health status of both undergraduate and graduate international students studying at one Canadian University based on Keyes's Dual Continuum Model of Mental Health and Mental Illness. This study also investigated the association between coping skills and social support, and student mental health.

Methods. A cross-sectional survey design was employed to explore the international students' mental health status at the University of Alberta during the Winter and Spring 2020 semesters. The online survey consisted of demographic questions in addition to four assessments - the Mental Health Continuum-Short Form (MHC-SF), Kessler Psychological Distress Scale (K10), the Carver Brief-Cope Inventory (CBCI), and the Multidimensional Scale of Perceived Social Support (MSPSS). Descriptive statistics were conducted to analyze the demographic data and the distribution of student mental health on Keyes's Dual Continuum Model of Mental Health and Mental Illness. The multiple regression analysis was utilized to understand how

international students' coping skills and social support could predict their psychological distress and subjective well-being.

Results. Three hundred and thirty-eight international students participated in this study with a mean age of 24.8 years old. The sample represented international students from 53 countries. Fifty-six percent of participants were at the graduate levels of study, and 85% of respondents described themselves as single. Female participants, those in the Ph.D. programs, and married students demonstrated better mental health status and lower psychological distress. Based on the, 76% of international students demonstrated optimal mental health without any previous diagnosis/treatment of any mental disorders, as designed by Keyes' Dual Continuum Model of Mental Health and Mental Illness. On the other hand, 3% demonstrated poor mental health with a previous diagnosis/treatment of mental disorders. In terms of coping styles, 86% of participants used approach coping as their primary coping style. The analysis showed that all approach coping style, avoidant coping style, and social support level were significant predictors of positive mental health and psychological distress.

Discussion. The findings of this study revealed that international students who are female, married, and in the Ph.D. program were more likely than their peers to have better mental health status and lower psychological distress. This result could be related to the tendency of women to seek help from and disclose their mental health problems to their friends or family members than men. Married couples have more robust social networks such as their partners or in-law's family members to support them when they need or seek help. Moreover, Ph.D. students might have more previous experiences regarding handling difficult situations by using better coping strategies or looking for help. With these findings in mind, recommendations to better support international students are included. This study provides comprehensive and novel data that can

be used to address the gaps in meeting the mental health needs of international students and raise awareness of this population's unique mental health status.

Keywords: International students, mental health, well-being, coping skills, social support.

Preface

This thesis is original work by Delaram Baghoori. The research project entitled "Mental Health of International Students Studying at Canadian Universities", which this thesis is a part, received ethics approval from the University of Alberta Research Ethics Board (#Pro00099239, April 07, 2020). No part of this thesis has been previously published.

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CHAPTER I: Introduction

1.1 Student mental health

Mental health has become a growing concern in higher education. The transition from secondary to post-secondary education could be challenging for students due to a new academic environment, changes in social supports and role identities, living apart from family, and increased workload (Cleary, Walter, & Jackson, 2011; Carr, Colthurst, Coyle, & Elliott, 2013). Difficulty transitioning to these new conditions can cause students to experience mental health issues such as distress, anxiety, life imbalance, isolation, and being overwhelmed (Goodman, 2017). In addition to negatively affecting the quality of life, physical health, and well-being of university students, mental health issues also have a detrimental impact on academic achievements, sometimes causing students to leave studies prior to completing the degree (Renshaw & Cohen, 2013). For example, depression and anxiety among students were associated with decreased GPA, increased alcohol consumption, smoking, withdrawal from the program, and suicide (Hysenbegasi, Hass, & Rowland, 2005; Serras, Saules, Cranford, & Eisenberg, 2010; Cranford, Eisenberg, & Serras, 2009). Therefore, investigating student mental health status and factors associated with mental health problems becomes a significant focus in post-secondary education (Coniglio, McLean, & Meuser, 2005).

1.1.1 Mental health of Post-secondary students in Canada

American College Health Association (ACHA) is a leadership organization that advocates for college and university students' health promotion and prevention services in the United States. ACHA-NCHA-II is a nationally recognized research survey for college students regarding their smoking habits, mental health issues, relationship difficulties, sexual behaviors, and other related health topics, conducted by ACHA, both in the US and Canada. In 2019, ACHA-NCHA II revealed that the level of mental health problems experienced by post-secondary students has been increasing by 5-10% between 2011 and 2019 but has remained nearly the same since 2016. According to these survey results, the top four factors that negatively impact post-secondary students' academic performance are related to their mental health (stress, anxiety, sleep, and depression). Therefore, they reported that student well-being is related to academic success (American College Health Association, 2019).

In 2013, ACHA-NCHA II revealed that among 34,039 Canadian post-secondary students, 89.3% felt overwhelmed, 56.6% experienced overwhelming anxiety, 53.8% reported being hopeless, and 37.5% felt so depressed that it was hard to function (American College Health Association, 2013). In 2016, among 43,780 Canadian post-secondary students, 89.5% reported being overwhelmed, 66.6% felt very lonely, 64.5% experienced overwhelming anxiety, and 44.4% felt so depressed that it was hard to function (American College Health Association, 2016). In 2019, ACHA-NCHA II revealed reported that among 55,284 Canadian higher-education students, 64% reported feeling hopeless; 88% experienced overwhelming anxiety; 52% reported feeling so depressed that it was difficult to function, and 69% reported experiencing overwhelming anxiety in the previous year (American College Health Association, 2019). Data from the past 10 years indicated that the level of mental health problems experienced by post-secondary students in both US and Canada has increased from 5-10 percent since 2011 but has remained nearly the same since 2016 (American College Health Association, 2019). Of these Canadian higher-education students, 14.2 percent were international students who represented a significant population (American College Health Association, 2019). In fact, the international student population represented 14.1% of all enrolments across Canadian public colleges and universities in the 2017/2018 academic year. The number of international students in Canada has increased considerably by 185% from 2010 to 2019 (642,480 in total) (CBIE, 2019; Statistics Canada, 2019). This trend drives the national agenda for conducting more rigorous research for this population (Chen, 2008; Madgett & Bélanger, 2008).

1.1.2 Mental Health of International students

Investigating the challenges and concerns of international students has become popular among researchers since the number of students who move to another country to pursue their study have been increasing significantly. However, international students' mental health has received little attention. Zhang and Goodson (2011) conducted a systematic review to explore the predictors of international students' psychosocial adjustment to life in the US. Sixty-four peer-reviewed published articles between January 1990 and January 2009 were included in their review. The findings revealed that US college health researchers gave insufficient attention to international students' mental health. Similarly, Pendse and Inman (2017) analyzed 6,191 published articles from 1980 to 2014 and found that only 1.37% of those articles focused on the mental health challenges of international students.

Pre-existing research in this area has focused on the psychological distress, help-seeking behaviours and the lived experiences of international students. Multiple studies on students' help-seeking behaviours have been conducted in Canada, United States, and Australia (Popadiuk & Arthur, 2004; Hyun, Quinn, Madon, & Lustig, 2007; Liu, 2016; Williams, Case, & Roberts, 2018). These studies found that international students' various cultural values and beliefs are often in conflict with the concept of mental health in their destination country. As a result, international students are hesitant to seek help from university counselling services. Instead, they prefer to seek help from family members, close friends, or relatives (Mori, 2000; Popadiuk & Arthur, 2004). Many international students believe that seeking psychological help is a sign of weakness and failure. Due to this self-stigmatization, they are more fearful of disclosing their problems and concerns to professional psychologists and are less willing to seek mental health services (Mori, 2000; Hyun, Quinn, Madon, & Lustig, 2007; Russell, Thomson, & Rosenthal, 2008; Han, Han, Luo, Jacobs, & Jean-Baptiste, 2013; Lee, Ditchman, Fong, Piper, & Feigon, 2014; Lian, 2017; Clough, Nazareth, Day, & Casey, 2019).

Researchers investigating psychological distress (e.g., anxiety and depression) among international students reported that poorer physical health, less social support, less religious involvement and spirituality, and negative attitudes towards seeking professional help were associated with greater psychological distress levels (Mori, 2000; Rosenthal, Russell, & Thomson, 2008; Nahidi, Blignault, Hayen, & Razee, 2018). Studies also demonstrated that the level of stress is related to a discrepancy between the host culture and the culture of origin (Lee, Koeske, & Sales, 2004; Rosenthal, Russell, & Thomson, 2008; Kono, Eskandarieh, Obayashi, Arai, & Tamashiro, 2015; Wei, Liang, Du, Botello, & Li, 2015; Liu, 2016).

Some other studies explored the lived experiences of international students and their challenges (Hotta & Ting-Toomey, 2013; Anandavalli, 2019; Forbes-Mewett & Sawyer, 2019). The experience of acculturation in a new country can provide an opportunity for self-development, building relationships with new people, and developing social skills, when integrating into the new society. At the same time, international students may face unique challenges such as language barriers, financial problems, lack of friendships and social support, lack of cultural understanding and community inclusion, racism and discrimination, to name a few. Dealing with these challenges could negatively impact the mental health and well-being of international students (Houshmand, Spanierman, & Tafarodi, 2014; Wu, Garza, & Guzman, 2015; Calder et al., 2016).

The current literature mainly focused on the cultural adjustment process and help-seeking behaviors among international students. However, there is limited understanding of the mental health status of international students in Canada. Therefore, this study aimed to identify the mental health status and factors associated with mental health problems of international students in Canadian Universities.

1.2 Conceptualizing Mental Health

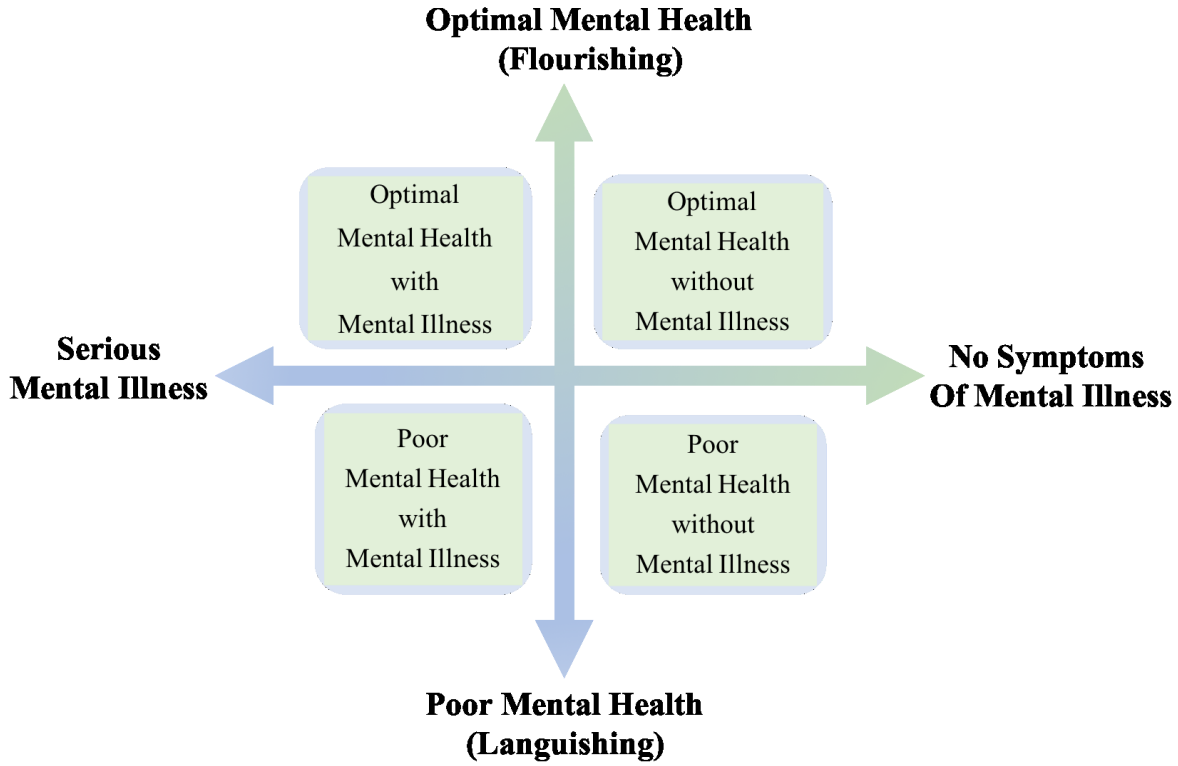
The World Health Organization defined mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community'' (WHO 2014, p. 12). This definition highlights three main components: (1) well-being, (2) effective functioning of an individual, and (3) effective functioning for a community (WHO, 2014). A mental illness refers to a wide range of mental health conditions which significantly affect a person's mood, thinking and behaviour. Mental illnesses can result from biological, developmental, psychosocial, and/or environmental factors and are associated with distress and/or problematic functioning in social, work or family activities (Malla, Joober, & Garcia, 2015; Manderscheid et al., 2010). Keyes defined mental health as "an individual's perceptions and evaluations of their own lives in terms of their affective states and their psychological and social functioning" (Keyes, 2002, p. 605). Keyes (2002) suggested that a combination of emotional, psychological, and social well-being is required for an individual to be considered as mentally healthy. He defined flourishing as a state where individuals combine a high level of subjective well-being with an optimal level of psychological and social functioning. In contrast, languishing is defined as a state where low levels of subjective well-being are combined with low psychological and social well-being levels.

The parallel concept between Keyes's definition of positive mental health and the WHO's definition of mental health is noticeable. Keyes's model has been widely used to investigate the mental health and mental illness status among different populations (Iasiello & Van Agteren, 2020). Therefore, we chose this model since the concept of mental health is in line with the WHO definition, described earlier in this chapter. This model's first strength is that it emphasized that being mentally healthy is a consequence of emotional, psychological and social well-being not merely the absence of mental diseases. Secondly, it considers mental health to be dynamic over time, which means that one's status can move through the continua

up and down and from one side to the other side. Therefore, mental health can be considered a condition where individuals are in the optimal mental health status, no matter the presence or absence of a psychiatric diagnosis of mental illness and vice versa (Keyes, 2002; Westerhof & Keyes, 2009). This model focuses on well-being and helps health care professionals distinguish between people who are experiencing optimal mental health and those who could benefit from mental health promotion programs to move closer towards the flourishing quadrant. However, this model is somewhat limited in that it cannot be applied for all mental health conditions. It implies that people with acute and severe conditions such as acute depression, cannot simultaneously have the symptoms of mental illnesses and being flourishing (Iasiello & Van Agteren, 2020).

The Keyes's Dual Continuum Model of Mental Health and Mental Illness (see Figure 1) focuses on investigating mental health outcomes beyond the mental illness outcomes. This model conceptualizes mental health as a continuum between flourishing or languishing, measured through subjective well-being. Subjective well-being refers to the individuals' perceptions and evaluations of their own lives regarding their emotional states and their psychological and social functioning (Keyes & Waterman, 2003). Emotional well-being indicates the presence or absence of positive feelings about life (e.g., individuals are in good spirits; individuals are not hopeless). Psychological well-being, consisting of sub constructs self-acceptance, positive relations with others, personal growth, and autonomy, is related to personal reflection on the presence or absence of positive functioning in life. Social well-being, consisting of social coherence, social actualization, social integration, social acceptance, and social contribution, is considered a reflection of interpersonal and public functioning (Keyes, 2002).

Figure 1. The Dual Continuum Model of Mental Health and Mental Illness (Keyes, 2002)



As illustrated in Figure 1, mental health and mental illness are presented on a two-continua model. In the vertical continuum, the optimal mental health or flourishing (e.g., self-acceptance, having good coping skills, or personal growth) represent one end, while poor mental health or languishing represents the other end. In the horizontal continuum, severe mental illness (e.g., anxiety, depression, personality disorder, schizophrenia, etc.) and no symptoms (i.e., not having a mental illness diagnosis) represent the two ends. According to this model, people can have a mental illness while having positive mental health. This is likely to occur when an individual is coping effectively, responding well to treatment, and is experiencing fewer psychiatric symptoms. On the other hand, people can have no mental illness yet be in a state of poor mental health. This could occur when an individual is under a great deal of stress, which has had a negative effect on their mood, thinking patterns, and personal relationships (Keyes, 2002).

Relevant to the context of post-secondary settings, some students may not be diagnosed with a mental illness but be languished because of the stressors and challenges they experience while studying. However, students diagnosed with mental illnesses can be flourishing if their mental health needs are well supported. Mental health in this study is defined based on Keyes's Dual

Continuum Model of Mental Health and Mental Illness. It means that students who show optimal mental health are those who have a high level of subjective well-being with an optimal level of psychological and social functioning, located in the flourishing end of the continuum. This study's overall goal was to identify students' distribution in each quadrant of this model.

1.3 Purpose and significance

The purpose of this study was to explore the mental health status of both undergraduate and graduate international students studying at one Canadian University based on Keyes's Dual Continuum Model of Mental Health and Mental Illness. This study also investigated the association between coping skills and social support, and student mental health. Findings from this study will inform the school services to provide more psychological and social support services for international students. Since this study was conducted during the first COVID-19 outbreak in Edmonton, the impact of COVID-19 on the mental health status of international students was investigated.

This research provides comprehensive, evidence-based data that can be used to raise awareness of this population's unique mental health status and address the gaps existing in recognizing the mental health needs, outcomes, and resources intended to support international students. This study's results could be beneficial to a range of stakeholders, including education policymakers, university administrators, university student services, student organizations, the student body, and mental health service systems.

1.3.1 Research questions

1. What is the mental health status of international students based on the Keyes's Dual Continuum Model of Mental Health and Mental Illness?

2. Do coping skills and social support predict international students' mental health and subjective well-being status?

1.4 Definition of key words

International students: According to Statistics Canada (2016), international students are defined as individuals who left their country of origin and moved to Canada for the purpose of

the study and holds a study permit, issued by the Government of Canada (Statistics Canada, 2016).

Mental health: According to the WHO, Mental health is defined as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community." (WHO, 2004).

Coping: Coping is defined as “the process of attempting to manage the demands created by stressful events that are appraised as taxing or exceeding a person’s resources” (Taylor & Stanten, 2007, p.378). Methods of coping are considered as the individual’s strategies to manage their feelings of stress or challenges and can be classified in both adaptive and maladaptive ways.

Carver and his colleagues (1989) defined approach coping as adaptive coping which included active coping, positive reframing, planning, acceptance, seeking emotional support, and seeking informational support. Indeed, approach coping responses are associated with less stress and better decision making to cope with difficulties. On the other hand, avoidant coping was defined as maladaptive coping which included denial, substance use, venting, behavioral disengagement, self-distraction, and self-blame. Compared to approach coping, avoidant coping has shown to be less effective at managing difficult situations.

Social support: Social support refers to physical, psychological, and/or emotional comfort given by family, friends, co-workers, or significant others in times of need (Canadian Mental Health Association, 2018). Cohen (2004) defined social support as a social network supplied from psychological and material resources predesignated to benefit an individual's ability to cope with stress.

Culture: Culture basically means the knowledge about the norms and values which inform perceptions, thoughts and behaviors in any given society or country. Banks & McGee defined culture as "The values, symbols, interpretations, and perspectives that distinguish one person from another in modernized societies; it is not material objects and other tangible aspects of human societies. People within a culture usually interpret the meaning of symbols, artifacts, and behaviors in the same or in similar ways" (Banks & McGee, 1989).

1.5 Thesis Outline

This thesis is constructed using a traditional thesis format divided into five chapters. Chapter I, Introduction, includes background and context, the study objectives, definitions of key terms, and the conceptual framework used to inform the research. Chapter II, Literature Review, provides a review of the available literature related to the mental health of international students. Chapter III, Methods, contains study design, data collection process, and statistical analysis methods, as well as the detailed explanations of the questionnaires used in the survey. Chapter IV, Results, presents the findings of this study. Chapter V, Discussion, summarizes the findings of the present study in relation to the research field, as well as the implications for future research.

CHAPTER II: Literature Review

2.1 Setting the Scope

This chapter provides a review of the literature, including the following topics that are relevant to the present study: (a) prevalence of mental health problems among post-secondary students and international students and (b) the factors influencing the mental health and well-being of international students. Additionally, this chapter will identify any gaps in the existing body of literature for future research consideration. The review of the empirical literature offers an opportunity to investigate both the mental health status and mental health issues among international student populations. The goal of this chapter is to determine the available information in order to determine what is known and what needs to be known about the mental health of international students, as well as the influencing factors that might have an impact on international students' mental health and what strategies do this population employ to overcome their difficult situations.

Several methods were used to identify the studies. First, an online search was undertaken to retrieve peer-reviewed journal articles using academic databases and search engines available on the University of Alberta library, including Educational Resources Information Centre (Eric), ProQuest Education Databases, MEDLINE, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, PsycINFO, and Google Scholar. The following terms were used for each search: "mental health," "international students" or "foreign students", "coping strategies or coping skills or coping or cope", and "social support." Date range (2000-current) and English Language were used as the search limiters. Second, the reference lists of identified publications were cross-checked to ensure that all relevant material has been identified. Then, all relevant publications were retrieved. Third, prevalence and other population survey outcomes were gathered from the World Health Organization, Statistics Canada, Canadian Mental Health Association, and Canadian Bureau for International Education.

2.2 Prevalence of Mental Health Problems among Post-secondary Students Including International Students

Mental health is a growing issue in post-secondary students, exacerbated by the increasingly competitive and demanding culture of university expectations. Students face growing levels of stress, anxiety, work/life imbalance, isolation, and many of them are overwhelmed with the heavy demands in their lives. Post-secondary students often experience various stressors that may contribute to the development of both mental and physical health problems such as concentration difficulty, fatigue, anxiety, eating disorders, depression and other psychiatric illnesses (Canadian Association of College & University Student Services, 2013; Hunt & Eisenberg, 2010; Eisenberg, Gollust, Golberstein, & Hefner, 2007; Kitzrow, 2003).

In recent years, several studies have reported a significant prevalence of mental health issues among post-secondary students (Bernaras Iturrioz, Insúa Cerretani, & Bully Garay, 2018; Chen, Liu, Zhao, & Yeung, 2015; Hunt & Eisenberg, 2010; Eisenberg, Gollust, Golberstein, & Hefner, 2007). Eisenberg and colleagues (2013) administered online surveys at 26 campuses in the USA to investigate the mental health of college students. They reported that among 14,175 students who completed their surveys, 17.3% of them had depression episodes, 4.1% had panic disorder, 7.0% experienced generalized anxiety, and 6.3% had suicidal ideation. According to Blanco et al. (2008), almost 40% of the college students reported at least one mental disorder in the past 12 months, 11% of them reported mood disorders including depression, and 12% suffered from anxiety disorders. Farrer and colleagues (2016) also distributed an online survey to both undergraduate and postgraduate students at one Australian university. The prevalence of major depression and generalized anxiety disorder in their sample of 611 students, was 7.9 and 17.5 %, respectively. In addition to mental disorders, multiple studies have reported a high prevalence of substance abuse disorders among post-secondary student populations which were identified as maladaptive coping mechanisms in an attempt to deal with mental health problems (Iarovici, 2014; Barrett, Darradeau & Pihl, 2006; Jackson, Pancer, Pratt, & Hunsberger, 2000). Robinson et al. (2016) reported that among 400 college students from one university in western Canada, 36.1% and 31.9% identified anxiety and depression respectively as their main concerns, and near 42% of their sample met the criteria for clinical psychological distress.

Previous studies have demonstrated that some students are experiencing mental health challenges, in addition to the required expectations and heavy course loads. Consequently, students are experiencing some forms of mental distress such as anxiety and depression, which has serious implications for their overall well-being and academic performance (Linden & Stuart, 2020; Harrer et al., 2019; Farrer, Gulliver, Bennett, Fassnacht, & Griffiths, 2016; Heck et al., 2014; Eisenberg, Hunt, & Speer, 2013). Students' well-being may suffer as a result of ineffectively managing mental health and academic expectations. It is in the higher education institutions' best interest to address some of the factors that might contribute to the mental health and well-being needs of students.

There has been a growing trend among researchers to examine challenges and concerns of international students since the number of students who move to foreign countries from their home countries to continue their study, have increased significantly. Over the past decades, the international student population enrolled in post-secondary and higher education programs has grown considerably around the world. For example, the total number of international students enrolled in U.S. higher education has almost doubled from 2000 to 2019 and reached 1,095,299 in total (Open Doors, 2019). The total number of international students enrolled in higher education programs in Australia demonstrated a significant growth in the last ten years from 242,475 to 404,515 (Ferguson & Sherrell, 2019: Australian Government, 2020). The number of international students in Canada has increased considerably by 185% from 2010 to 2019 (642,480 in total) (CBIE, 2019; Statistics Canada, 2019).

On top of all the stressors and challenges which post-secondary students might struggle with, international students encounter additional stressors (i.e., acculturative stress), especially when coming from a very different cultural background. Attending university in a new country as an international student can entail numerous challenges including separation from family, difficulties with a new language, racial/ethnic discrimination, new responsibilities, financial concerns, academic requirements, reduced social support, homesickness, and imbalanced lifestyle between study and work. The process of adapting culturally and academically to the host country could bring about psychological conflict, overload and/or uncontrollability (Minutillo, Cleary, Hills, & Visentin, 2020; Alharbi & Smith, 2018). These stressors and circumstances could eventually influence international students' mental health status as well as their academic performance and might result in mental health problems such as depression, anxiety, and suicidal ideations (Minutillo, Cleary, Hills, & Visentin, 2020; Alharbi & Smith,

2018; Mesidor & Sly, 2016; Smith & Khawaja, 2011; De Araujo, 2011; Misra, Crist & Burant, 2003). Therefore, it is vital that host universities understand how and to what extent the adaptation process could affect the mental health status of international students and maintain a level of cultural sensitivity when providing services for their international students.

Despite the high number of international students and their contributions to the educational systems and societies they study in, there has been a limited number of studies investigating international students and their related issues in the literature (Zhang & Goodson, 2011). Systematic research on international students started in the 1950s when the number of research studies related to international students' social and psychological issues was high in number (Ward, Bochner, & Furnham, 2001). The oldest review explored the psychological adjustment of sojourners or short-term visitors to the new environment with different cultures and the potential difficulties they may struggle with. The author outlined some limitations regarding his findings such as lack of longitudinal designs, underdeveloped theories and concepts used in studies, and the absence of baseline data (Church, 1982). In 2006, Andrade conducted a literature review to identify factors which have an impact on the adjustment and academic achievement of international students from different countries. The results indicated that difficulties with language and culture could affect both academic and social adjustment of international students. Later in 2011, Zhang and Goodson conducted a systematic review to explore the predictors of international students' psychosocial adjustment to life in the United States. They reported that stress, social support, English language proficiency, region/country of origin, length of residence in the United States, acculturation, social interaction with Americans, self-efficacy, gender, and personality were the most frequent predictors of international students' psychosocial adjustment. Similarly, De Araujo (2011) reviewed the literature with the focus of adjustment issues experienced by international students enrolled in American universities. They found that English fluency, social support, length of stay in the U.S., perceived discrimination or prejudice, establishing relationships with Americans, and homesickness were significant variables related to the adjustment of international students. Another systematic review was conducted by Li, Wang and Xiao (2014) with a specific focus on East Asian international students and their psychological well-being. They concluded that psychological well-being of East Asian international students was associated with length of stay in host country, English proficiency, and attitudes toward seeking help. They also reported that depression and anxiety were the most frequent reported symptoms. More recently, Alharbi

and Smith (2018) conducted a review to address the main resources of stress experienced by international students and the role of individual differences on their adjustment process. Acculturative stress, English-language proficiency, perceived discrimination, loneliness, and academic stress were demonstrated as the main sources of stress for international students. The main individual differences that could have an impact on the academic success and cultural adaptation among international students involved demographic variables (such as gender, age, ethnicity, and length of stay), coping strategies, social support, and personality traits.

The current systematic literature review mainly focused on the cultural adjustment process and the predictors of international students' psychosocial adjustment. However, there is limited understanding of their mental status, especially among international students in Canada. Therefore, the purpose of this study was to identify the mental health status and factors associated with mental health problems of international students in Canadian Universities.

2.3 Factors Influencing International Student's Mental Health

Mental health problems, or poor mental health conditions could have a negative impact on students' well-being. Among university students, psychological distress at the social, cognitive, and emotional domains could disrupt their academic life (Kitzro, 2009; Terrazas- Carrillo et al., 2014). Beyond the general stressors which post-secondary students experience, being an international student in a new university with a new educational system as well as a new culture could have a significant impact on the mental health status of international students during their transition. Based on the Biopsychosocial model (Engel, 1977), the factors influencing the mental health of international students can be categorized into biological factors (physical status, diet, lifestyle), psychological and personal factors (communication skills, coping skills, stigma, beliefs, motivations), and social factors (country of origin, relationship status, family support, university culture). According to the biopsychosocial model, interactions between these factors could impact on the health status of the individuals (Engel, 1977). Since the impact of these mentioned factors on the mental health of international students are inevitable, and differently affect each individual student, exploring the mental health status of international students based on this model requires a detailed investigation (McClure, 2007; Calder et al., 2016). To have a better understanding of these factors, further review of their impact on the mental health of international students, is provided below.

2.3.1 Biological Factors

Biological factors include physical health status, genetic vulnerabilities, metabolic disorders, immune system function, lifestyle, diet, comorbidities, and any other factors which are related to the physical elements of the body that affect and determine health (Engel, 1977). Each of these biological factors could have a positive or negative impact on one's physical or mental health status. To examine the health status of international students, researchers must consider these factors and determine their impact on mental health.

Unfamiliar climate and food: Ying (2005) examined acculturative stress among Taiwanese international students in the US and reported that unfamiliar climate was one of the five main stressors which appeared intense early on and decreased sharply from the first year to the second year of study. International students who move away from hot sunny climates to a cold and dry climate in North America may not well adjust initially to the weather. Also, due to the various types of food in the new country, it is hard for some international students to find the ingredients they were used previously in their home country. Brown (2009) reported that among international students, the more distinct the home country food from the food available in the host country, the more reluctance to buy or eat the local food. Brown et al. (2010) also conducted several semi-structured interviews in England to explore the meaning attached to the host country food to international students. They found that eating familiar home country food was positively related with relief and comfort among international students while the unfamiliar food generated anxiety and discomfort. Therefore, international students may struggle with preparing food in the new environment and might result in nutritional deficiencies or could impact their mental health (Ryan & Twibell, 2000).

2.3.2 Psychological and Personal Factors

Psychological factors include personality traits, motivations, attitudes, beliefs, emotions, communication skills, role of coping strategies, and any other factors related to the mind. Same as biological factors, these factors could positively or negatively affect the health status of international students. Contemplating these factors besides the biological factors is necessary for investigating the mental health of international students.

Communication skills: Due to the diversity of accents, pronunciations, the speed of speech, idioms and expressions, some international students feel worried regarding their responses or

reactions toward domestic counterparts in social and educational interactions. Such worries may lead to the feeling of social isolation and loneliness (Wu et al., 2015; Andrade, 2006). Other students find themselves isolated from peers due to the gaps in social values, cultural beliefs, and expected social norms (Misra, Crist, & Burant, 2003). Terrazas-Carrillo et al. (2014) conducted a qualitative study to explore the international students' perceptions, experiences, and emotions regarding their attachment to the new country in one US university. Their findings emphasized the importance of context in the process of international student adaptation. They also reported that international students were involved in a process of finding new meanings attached to the new places to fulfill their emotional needs by conducting social interaction and expressing their emotional experience with the new people. Therefore, communication skills here play a key role in building a sense of belonging and attachment. Having poor communication skills to integrate into the new academic and social environment at the host university may result in experiencing depression and anxiety for some international students (Mori, 2000; Erichsen & Bollinger, 2011; Chen, Liu, Zhao, & Yeung, 2015; Wang et al., 2018).

Furthermore, English proficiency has a positive impact on the social and academic adaptation process among international students in English-speaking institutions. More proficiency in English language skills is related to better academic and educational performance; those with higher English proficiency may find it easier to communicate with other people and experience less isolation and anxiety (Alharbi & Smith, 2018; Zhang & Goodson, 2011; Sumer, Poyrazli, & Grahame, 2008; Chavajay & Skowronek, 2008; Yeh & Inose, 2003). Kim (2011) conducted a study to investigate the factors that predict academic success and acculturative stress among international students in the US. Findings suggest that English proficiency was one of the most powerful predictors of acculturative stress among international students.

Coping skills: Coping strategies refer to the strategies that an individual employs towards handling challenging situations or problems (Lazarus and Folkman, 1984). Previous studies grouped coping strategies as adaptive vs. maladaptive, problem-focused vs. emotion-focused, and approach vs. avoidant coping styles. Approach, adaptive and problem-focused coping styles include the strategies which are beneficial to solve the stress-related problems through taking active steps to deal with the situation and to manage the unpleasant results. By contrast, avoidant and maladaptive coping styles involve having selective attention, distracting from the problem, keeping the self away from the source of stress, and avoiding a threatening and

unpleasant situation. Emotion-focused coping refers to the cognitive orientation resulting from the problems which might not directly change the situation. The effectiveness of these coping strategies depends on the type of stressors and previous experiences (Lazarus & Folkman, 1984; Carver et al., 1989; Mesidor & Sly, 2016; Alharbi & Smith, 2018).

Regarding the concept of coping skills related to international students, several studies indicated that coping skills could be identified as mental health predictors of international students and found a significant relationship between coping skills and adjustment process (Khawaja & Dempsey, 2007; Sumer, 2009; Khawaja & Stallman, 2011; Mesidor & Sly, 2016; Alharbi & Smith, 2018). Sumer (2009) examined the relationship between coping styles and adjustment of 204 international students in the U.S and found that identification with the host culture was one of the predictors of sociocultural adaptation. In addition, female students were found to be more likely to use coping strategies such as positive reappraisal and seeking social support compared to their male peers. Ra and Trusty (2015) examined the effects of coping strategies on managing acculturative stress and acculturation among 220 Asian international students in the U.S. Their findings demonstrated that the mediating role of three coping strategies (task-oriented coping strategies, emotion-oriented coping strategies, and avoidance-oriented coping strategies) between acculturation and acculturative stress. They reported that Asian international students who used more task-oriented coping strategies could eventually effectively handle the acculturative stress that arises from acculturation. Those students who intentionally utilized avoidance-oriented coping strategies showed a higher level of psychological well-being and reported less acculturative stress due to the relieving or relaxing effects of distracting activities. However, Asian international students who used emotion-oriented coping strategies demonstrated higher levels of acculturative stress. They also found that living in the foreign country challenged international students to use effective coping behaviors, which consequently reduced their levels of acculturative stress. Another study conducted by McClure (2007) examined the experiences of 12 international graduates in Singapore and found that self-determination and collegial support as key coping strategies for international student adjustment process which could have an impact on their mental health status. Sapranaviciute et al. (2013) performed a study to determine the associations between stress coping strategies, socio-demographic factors and depressive symptoms among 100 international students in Lithuania. They showed that stress coping was a strong predictor of depressive symptoms among international students. Focusing on and venting of emotions,

behavioral disengagement, and less frequent use of strategies such as positive reinterpretation was associated with higher levels of depressive symptoms. Moreover, international students who tend to smoke or drink alcohol to cope with stressful situations might have more depressive symptoms compared to those who were less likely to engage in substance abuse. Previous studies have also pointed out some differences in coping strategies between female and male students. Some studies found female students applied more home culture identification as acculturation strategy and demonstrated better coping skills (Sumer, 2009). Female students also engaged in less health risk behaviours in reaction to stressors such as smoking, and alcohol consumption (Rosenthal, Russell, & Thomson, 2008) compared to their male counterparts. However, Misra et al. (2003) examined the relationships among life stress, academic stressors, perceived social support, and reactions to stressors among 143 international students in the US. They reported that female international students demonstrated more emotional reactions such as fear, physiological symptoms (i.e., sweating, trembling, stuttering, body or headaches and weight loss or gain) and behavioral reactions (crying, self-abuse) to cope with the stressors compared to their male peers.

2.3.3 Social Factors

Social factors involve socio-economic status, background culture, gender, family expectations, stigma, discrimination, level of social support, school culture, peers, and any other factors related to the environment/surroundings. These factors, like the two other factors of the biopsychosocial (BPS) model (Engel., 1977), can have an impact on the mental health status of international students.

New educational system: Campus adaptation in this study refers to adjustment to a new educational system (e.g., grading scale, examination type), academic workload (e.g., number of assignments, class discussions), student-supervisor relationships, use of campus research facilities (e.g., library systems, research software), and education policies. International students may find the new educational system challenging because of the differences from their home country's education system. Previous studies conducted in Asian, Middle Eastern and African sub-continent schools and universities indicated that students have been trained to take part in their classes as a quiet student and take notes, while American students are trained to participate in class activities and discussions and manage the demands of frequent "pop quizzes" in classes (Aubrey, 1991; Mori, 2000; Houshmand, Spanierman, & Tafarodi, 2014).

Smith and Smith (1999) found that "Asian students have difficulty in adjustment to an educational environment that was more characterized by independent learning and less instructor supervision and guidance" (p. 66). Such unfamiliarity with the host country's educational system could increase the level of anxiety, distress and even depression among international students (Mori, 2000; Misra, Crist & Burant, 2003). However, Liao & Wei (2014) conducted a study to investigate the impact of Asian cultural value on academic stress and academic achievements among Chinese international students in the US. Their findings illustrated that Chinese students who endorsed higher levels of cultural values would experience lower levels of academic stress. In addition, Asian cultural values could play a moderating role on academic success among Chinese international students. This means that Chinese international students with a high level of self-worth, when confronted with academic stress, showed low positive affect due to self-blame. They viewed their academic stress as a reflection of their imperfect personality and ignored the other positive aspects of their lives. Therefore, this sense of self inadequacy combined with academic stress, could result in lower levels of positive affect.

Gender: Historically, the terms sex and gender have been used interchangeably, but in fact, they are not the same. Sex refers to the biological differences between people, such as the genitalia and genetic differences. Gender is more related to the social and cultural role of each sex in any given society. WHO defined gender as "the socially constructed characteristics of women and men, such as norms, roles, and relationships of and between groups of women and men. It varies from society to society and can be changed" (WHO, 2003). Therefore, in this study gender was considered as one of the factors influenced by the social environment. Within the available literature, there are some contradictory findings regarding the impact of gender on the adjustment process among international students. Bang and colleagues (2008) investigated the impact of gender, stress and social support on the stress levels experienced by international students at a Midwestern university in the US. They found that female students showed higher levels of stress and poorer adaptation than their male peers. In contrast, Ye (2006) conducted a study to explore the relationship between acculturative stress of Chinese international students studying in the US and their interpersonal social support and use of online social groups. The results indicated that men were more likely to experience different types of acculturative stress compared to their female peers. Moreover, Sumer and colleagues (2008) conducted a study to investigate the predictors of anxiety and stress among international

students in the US. They found no relation between gender and international students' depression and anxiety levels. Yeh and Inose (2003) and Poyrazli et al. (2001) also reported that gender had no effect in the adjustment process of international students. Due to the discrepancy in the literature findings, further research is needed on this topic.

Stigma: Stigma refers to the negative attitudes which separate a group of people from others in their society (WHO, 2004). Stigma involves three components: cognitive component (stereotypes), emotional components (prejudices), and behavioural components (discrimination) (Corrigan & Watson, 2002). Stigma is one of the most cited barriers to seeking professional treatment regarding mental health problems (Clement et al., 2015). Mental health stigma can be experienced at two levels: social level (public stigma) and personal level (self-stigma) (Corrigan, 2004). Public stigma refers to negative stereotypes and discrimination regarding mental illness (for example, "people with mental illness are dangerous") existing among the general public while self-stigma happens when individuals identify themselves as stigmatized and exert related stereotypes toward themselves (Eisenberg, Downs, Golberstein, & Zivin, 2009). Eisenberg et al. (2009) conducted an empirical study on 5,555 students from a diverse set of 13 universities, to investigate the association of help-seeking behavior with both perceived public stigma and personal stigma associated with mental illnesses. Their findings demonstrated that international students, Asian particularly, reported higher personal stigma which negatively impacted their help-seeking behaviors such as using psychotropic medication, therapy, and nonclinical sources of mental health support.

Stigma is also associated with cultural values or beliefs which may affect help-seeking behaviors. According to the findings of the Tung's review of the literature (2011) due to the cultural beliefs associated with mental illness, many international students tend to underutilize mental health services when they need help. Additionally, Hyun and colleagues (2006) conducted a study to examine the mental health needs and utilization of counseling services among graduate students in the US and found that there had been cultural values against the use of mental health services among international students. These existing stigmas on seeking help might contribute to poor mental health status among international students (Yeh & Inose, 2003; Chen, Liu, Zhao, & Yeung, 2015).

Discrimination, which can result from the social stigma, refers to the act of treating a person or group of people unfairly because of their health status, color, race, place of origin, ethnic

origin, citizenship, gender identity, and disability such as mental disorders (Corrigan & Watson, 2002). Discrimination could result in low self-esteem and self-confidence while international students are in the challenging process of cultural or academic adjustment (Khawaja & Dempsey, 2007). For example, Asian international students can experience being ignored or marginalized by their domestic peers on campus because of their race (Bradley, 2000; Diangelo, 2006). Berg-Cross and Pak (2006) reported that Black African American international students find themselves isolated in their new environment due to the feeling of discrimination in terms of color, race, beliefs and social values. Rankin and Reason (2005) surveyed students from ten campuses to investigate the experiences of students from different racial groups. They reported that students of color experienced higher rates of harassment and discrimination and they also perceived their campus climate as more racist and less accepting than their White counterparts. It should be mentioned that perceived social discrimination can hinder international students' social participation and decrease their interaction with domestic peers thus contributing to social isolation and depression (Lee & Rice, 2007). Also, the social stigma regarding mental health issues, resulted in double stigma for international students who have been diagnosed or treated for any mental health disorders to seek help or express their mental health problems in public (Han, Han, Luo, Jacobs, & Jean-Baptiste, 2013; Lee, Ditchman, Fong, Piper, & Feigon, 2014; Williams, Case, & Roberts, 2018).

Cultural background: Some international students from European and South American countries adapt more easily to North American campuses compared to Asian and African international students due to the higher degree of cultural and social similarities between their origin and destination countries (Alharbi & Smith, 2018; Zhang & Goodson, 2011). Fritz and colleagues (2008) conducted a study to investigate stress, anxiety, acculturation and adjustment between groups of international students and domestic students in Southern California, US. The results from their study indicated that Asian international students experienced higher levels of stress compared to their European peers as well as domestic US students. Wilton and Constantine (2003) examined cultural adjustment and psychological distress among 190 Asian and Latin American international college students. They found that Latino students were not able to find many peers with the same culture, which had an impact on their ability to make friends and resulted in higher levels of psychological distress. Poyrazli & Grahame (2008) reported that the more cultural and social similarity exists between the country of origin and the host country, the better and easier cultural adaptation would occur. However, some

international students try to learn as much about the host country as possible to increase their knowledge related to the new culture. Moores & Popadiuk, (2011) conducted a qualitative study to explore the positive aspects of cross-cultural transition among seven international students. They found that some international students made an effort to get involved in the local community by attending various cultural or community events or doing volunteer work within or outside the university. International students in the study expressed that they gained several benefits (i.e., meet new people or improve their English proficiency) through getting involved in various activities or events with domestic students. Engaging in the community could help international students gain valuable experiences in the new culture and develop their interpersonal skills.

Social Support: Social support is defined as psychological and material resources received from various sources, including family, peers, friends, the university, work colleagues, and members of one's community to assist individuals to cope with stressors (Cohen, 2004; De Araujo, 2011, Alharbi & Smith, 2018). Social support is a significant resource which individuals can utilize while struggling with difficult or stressful situations. It involves comfort, caring, or any kind of help from other people or groups.

Perceived social support refers to a person's perception of the availability of general support or specific supportive behaviours from others. This perception reflects the function of social support or the quality of such support, but sometimes it indicates the level of adequacy of the received support (Demaray & Malecki, 2002). Perceived social support among international students reflects their available resources to cope with stress in a foreign country when their original support resources (i.e., from their family or friends) may become limited due to the geographical distancing from their home country. Due to this geographic separation, many international students stated episodes of feeling homesick and having less support while studying abroad (Poyrazli & Lopez, 2007). This separation could contribute to the experience of stress during the social and cultural adaptation process of international students (Byrd & McKinney, 2012; Mori, 2000). Interpersonal support networks, campus international students' supporting programs and family support could be considered forms of social support which positively help international students to develop better adaptation and mental health (Chow & Healey, 2008).

Previous studies found a strong relationship between social support and mental health of international students and revealed that better social support has a positive impact on the adjustment process among this population (Misra, Crist, & Burant, 2003; Yeh & Inose, 2003; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004; Dao, Lee, & Chang, 2007; Kanekar, Sharma, & Atri, 2010; Khawaja & Stallman, 2011; Zhang, 2012; Chavajay, 2013). For example, Khawaja and Stallman (2011) conducted a qualitative study to explore the lived experiences of international students in Australia. They found that international students managed their stress by sharing and discussing their problems with fellow students from their own country. Yeh and Inose (2003) also reported that satisfaction of social support and social connectedness were predictors of acculturative stress among international students. Those who felt socially connected and had better connections with their networks, expressed lower acculturative distress and had better mental health status. Another study conducted by Zhou et al. (2008) revealed that international students who received social support from university staff, domestic students, and co-nationals had better psychological well-being in a foreign country. Additionally, Chavajay (2013) suggested that the level and value of perceived social support had an important role in assisting international students to culturally adjust to and study in the new environment as well as to demonstrate better mental health. Findings from two studies revealed that limited social support had a significant contribution in predicting depression among international students (Dao, Lee, & Chang, 2007; Sumer, Poyrazli, & Grahame, 2008).

Among various factors discussed above, coping skills and social support seem to play the most significant roles when international students manage difficult situations (Ward, Bochner, & Furnham, 2001; Smith & Khawaja, 2011; Mesidor & Sly, 2016; Alharbi & Smith, 2018). It is important to mention that there are connections between the biological, psychological, and social factors. For example, coping skills (psychological category) is related to gender (social category), meaning that female and male international students tend to use different types of coping strategies based on their gender characteristics. Therefore, due to this discrepancy in the literature regarding the various usage of coping skills and different levels of social support in terms of gender and lack of literature in Canadian context, this study aimed to investigate the impact of coping skills and social support factors on mental health of international students in Canadian universities.

2.4 Impact of COVID-19 on Students Mental Health

In December 2019, multiple pneumonia cases were reported in Wuhan, China, which has later named as coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO). Later on, the WHO declared this outbreak a global pandemic (Anand, Karade, Sen, & Gupta, 2020). This severe pandemic resulted in unprecedented hazards to both physical and mental health globally.

Recent studies about the impacts of COVID-19 mostly assessed mental health issues among health workers, patients, children, and the general population during this pandemic (Lai et al. 2020; Ornell, Halpern, Kessler, & Narvaez, 2020; Usher, Durkin, & Bhullar, 2020; Vindegaard & Benros, 2020; Xie et al., 2020; Xiong et al., 2020). Several studies explored the impact of this outbreak on students' mental health (Cao et al., 2020; Firang, 2020; Husky, Kovess-Masfety, & Swendsen, 2020; Kecojevic, Basch, Sullivan, & Davi, 2020; Rajkumar, 2020). The overall findings revealed that the impact of COVID-19 on students' mental health involved increased level of anxiety, high level of perceived stress, increased level of depressive thoughts, having suicidal thoughts related to the COVID-19, increased feeling of loneliness, eating problems and disruption in sleeping patterns (Cao et al., 2020; Firang, 2020; Husky, Kovess-Masfety, & Swendsen, 2020; Kecojevic, Basch, Sullivan, & Davi, 2020; Rajkumar, 2020; Sahu, 2020; Son, Hegde, Smith, Wang, & Sasangohar, 2020; Wang, Hegde, Son, Keller, Smith, & Sasangohar, 2020). In particular, Son and colleagues (2020) reported that among 195 college students in the US, more than 70% experienced a high level of anxiety, stress and depression due to this pandemic. They identified stressors that contributed to the mental health issues including feeling worried about their health and their loved ones, having difficulty concentrating, sleep problems, loss of social interactions due to physical distancing, and concerning their academic performance.

2.5 Summary

In this chapter, literature regarding the prevalence of mental health problems among post-secondary students and international students, contributing factors of mental health among international students, and the impact of coping skills and perceived social support on mental health were reviewed and summarized. The review provides insight into the mental health status of international students in different countries. Literature in a Canadian context, however, is limited. Hence, the aim of this study is to investigate the mental health status of international students in one Canadian university and to fill the gap regarding the contribution of coping skills and perceived social support on mental health status of international students in the Canadian context.

CHAPTER III: Research Methodology

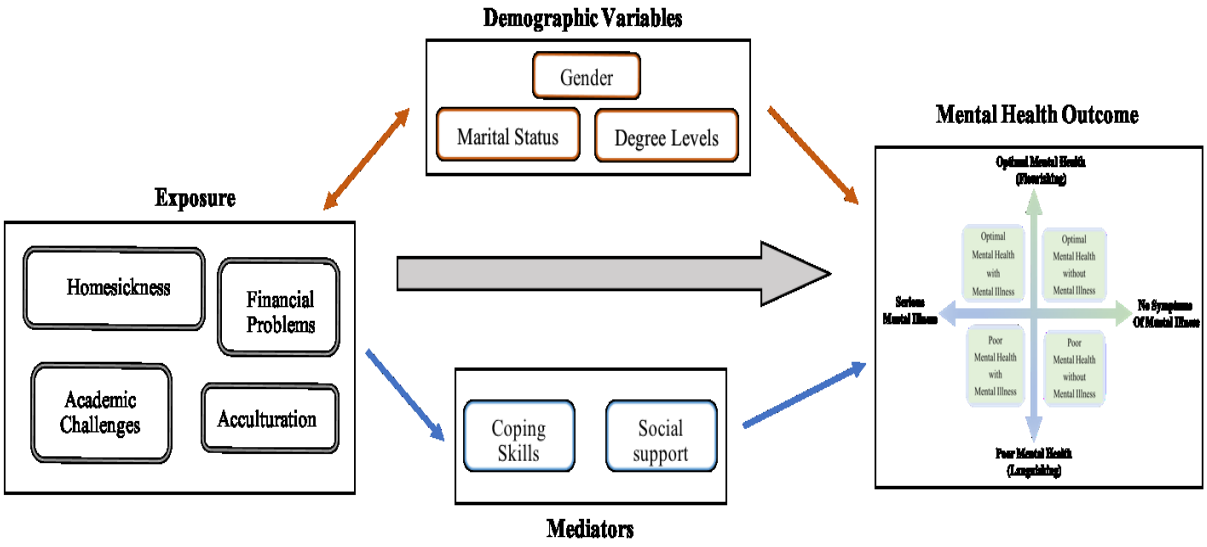
This chapter discusses the methodology used in the present study. First, the conceptual model on which this study is based will be explained. This will be followed by the study design, recruitment process, data collection techniques, and other important considerations related to the design of this study.

3.1 Conceptual Model

According to the thorough review of the literature (Chapter 2), there are a number of factors that could impact the mental health status of international students, including sex, degree level, coping skills, and social support. The conceptual model of this study (see Figure 2) designed based on the literature review and the research questions of this project and focused on the impact of stressors on mental health status of international students. This conceptual model integrates the Keyes's Dual Continuum Model of Mental Health and Mental Illness (Keyes, 2002) and factors reviewed from the literature.

This model represented the direct impact of stressors including academic challenges, homesickness, and acculturation on the mental health of international students. The mental health outcome in this model is viewed as a dual continuum; in which vertical continuum moves between flourishing or languishing and horizontal continuum flows between having or not having a diagnosis of mental illness (Keyes, 2002). Therefore, the effects of the stressors can change the position of the international students' mental health status through the continua up and down and from one side to the other side. Moreover, it is important to consider the impact of demographic variables on the mental health outcome of this population. Social support and coping skills are mediators in this model, indicating that they could influence the mental health outcomes of international students.

Figure 2. Conceptual model of international student's mental health



3.2 Study Design

This study followed a cross-sectional survey design. This analytical cross-sectional study explored the mental health status of international students currently studying at one Canadian university. It also examined the relationship of coping style and level of social support on predicting the mental health level of the target population. An online survey was distributed via online newsletters from the international centre as well as Facebook. The survey was created via the Qualtrics Survey platform.

3.3 Participants

This research study used an online survey to investigate both graduate and undergraduate international students' mental health status at the University of Alberta during the Winter and Spring 2020 semesters. There were more than 8000 international students at that time. Based on Statistics Canada's definition of international students, the inclusion criteria included students registered, both full-time or part-time, as an international student in a graduate or undergraduate program at the University of Alberta, and who were on Study Permit. Canadian students and those who were Permanent Residents in Canada were excluded.

3.4 Data Collection Process

The Qualtrics Survey platform was used for collecting data. The survey was anonymous, and no personally identifiable information was collected. The recruitment information was sent to all international students through the campus e-newsletter, containing a cover letter (see Appendix C), a consent form (see Appendix D) and a direct link to the survey. Students who were interested in participating clicked the study link to access the online survey. They first read the consent form, the cover letter, and those who provided consent to participate proceeded to the survey screening questions.

The survey included two screening questions: (1) Are you an international student? And (2) Are you on a study permit? By answering these screening questions, those international students who were on their study permit proceeded to answer the survey questions. Participants who were not eligible (not being an international student or being a permanent resident of Canada) were directed to the disqualification page. Once the participants completed the survey, they were directed to a "Thank you" page, where they could click on the "Next" button to participate in the draw of the study. Participants were asked to submit their names and university emails to participate in this draw for a chance to win one $50 gift card and ten $15 gift cards. All the University email addresses were entered into the Excel file in order to randomly select the winners. The bar-coded gifts cards were emailed to the eleven winners via their email. The Research Ethics Board of the University of Alberta (ARISE) approved the study (Pro#00099239) (see Appendix A).

After the approval to conduct this study was received, contact was made with the University of Alberta International centre to advertise this research study. Several advertisements (see Appendix B) were posted for six weeks (during April and May 2020) in the Global Beat bi-weekly newsletter and the Facebook page of The University of Alberta International. To increase the response rate, the timeline was extended for one more month (June 2020). Therefore, the survey link was open for ten weeks (from mid-April 2020 to the end of June 2020).

3.5 Survey

The online survey consisted of demographic questions involving age, gender, marital status, country of origin, length of stay in Canada, faculty of study, and degree level. A single Yes/No question of psychiatric diagnosis/treatment history was included to identify the horizontal continuum of the Keyes's Dual Continuum Model of Mental Health and Mental Illness, in addition to four assessments - the Mental Health Continuum-Short Form (MHC-SF), Kessler Psychological Distress Scale (K10), the Carver Brief-Cope Inventory (CBCI), and the Multidimensional Scale of Perceived Social Support (MSPSS). Copy of the original online survey is attached in Appendix E. Permission to use the four instruments was not required since the developers granted free access to academic research or use for educational purposes. Also, to explore the impact of COVID-19 on the mental health of international students, three open-ended questions were designed and added to the end of the survey.

3.5.1 Measuring Subjective well-being

To measure the mental health status of international students through the vertical continuum of the Keyes's Dual Continuum Model of Mental Health and Mental Illness, the Mental Health Continuum-Short Form (MHC-SF) (Keyes, 2006) was used. MHC-SF measures the three components of well-being: emotional well-being (3 items), psychological well-being (6 items), and social well-being (5 items). All 14 items assess how often in the past month respondents experienced the components of wellbeing. Each item is scored on a 6-point Likert scale ranging from 0 "never" to 5 "every day." The total score ranges from 0 to 70. Higher scores indicate positive subjective well-being, whereas lower scores demonstrate lower self-regard. Besides reporting the overall score, determining whether an individual is flourishing, languishing, or a status in between is also substantial. The status of flourishing by definition refers to individuals who experience at least one of the three emotional well-being items (item 1–3) and at least six of the eleven positive functioning items (item 4–14) "every day" or "almost every day" within the past month. Languishing status is referred to individuals who experience at least one of the three emotional well-being items (items 1–3) and at least six of the eleven positive functioning items (items 4–14) "never" or "once or twice" in the past month. Individuals who do not fit the flourishing or languishing criteria are categorized as moderately mentally healthy (Keyes, 2002). This questionnaire has demonstrated excellent internal consistency (> .80) in undergraduate university samples (De Bruin & Du Plessis, 2015) and discriminant validity in

adolescents (ages 12-18) and adults (Keyes, 2005, 2006). Correlations between items ranged from 0.58 to 0.62 for the emotional well-being subscale, 0.28 to 0.55 for the social well-being subscale, and 0.36 to 0.51 for the psychological well-being subscale, which are considered to be satisfactory (Orpana, Vachon, Dykxhoorn, & Jayaraman, 2017).

3.5.2 Measuring Psychological Distress

Since this study was carried out during the COVID-19 pandemic, we used the Kessler Psychological Distress Scale (K-10) to explore how this pandemic could impact on students' psychological distress (Kessler et al., 2002). K-10 is a simple and widely used measure of psychological distress. It involves ten questions about emotional states with a five-level response scale for each item. The measure can be used as a brief screening to identify levels of mental illness or mental disorders. Each item is scored from one 'none of the time' to five 'all of the time.' Scores of the ten items are summed, yielding a minimum score of 10 and a maximum score of 50. Low scores indicate low levels of psychological distress, and high scores indicate high levels of psychological distress. The cut-off scores used as a guide for screening for psychological distress are 10-19 (likely to be well), 20-24 (likely to have a mild disorder), 25-29 (likely to have a moderate disorder), and 30- 50 (likely to have a severe disorder) (Kessler et al., 2002). Cronbach's alpha for this scale has been reported as .93 (Kessler et al., 2003; Kessler et al. 2010). In the general population, K-10 has corresponded well with anxiety and affective disorders and shown a strong relationship with disability and mental health service use (Andrews & Slade, 2001; Furukawa, Kessler, Slade, & Andrews, 2003; Fassaert et al., 2009; Oakley Browne, Wells, Scott, & McGee, 2010). K-10 has also demonstrated good construct validity and high internal consistency in diverse populations, including aboriginal people and drug users (Bougie, Arim, Kohen, & Findlay, 2016; Hides et al., 2007).

3.5.3 Measuring Coping Skills

Coping skills were measured by the Carver Brief-Cope Inventory (CBCI) (Carver, 1997) to investigate how international students handle their challenges and stressors. It was designed as a flexible instrument, which assisted researchers to pick and choose from other relevant scales to use for the purposes of investigating coping strategies. This questionnaire was often used in health-related research to investigate coping processes. The CBCI is a self-report questionnaire containing 28 items to measure effective and ineffective ways to cope with stressful life events. It is an abbreviated inventory designed based on the full 60-item of the Coping Orientation to

Problems Experienced (COPE) (Carver et al., 1989). It evaluates the frequency with which an individual uses different coping strategies on a scale from 1 "I haven't been doing this at all" to 4 "I've been doing this a lot." This questionnaire is composed of 14 subscales, each of which measures the degree to which an individual uses that specific strategy.

Each of the 14 subscales contains 2 items in which the total score on each subscale ranges from 2 (minimum) to 8 (maximum). This questionnaire can be scored in two different ways. First, it can be categorized into 14 subscales including Self-distraction, Active coping, Denial, Substance use, Emotional support, Use of informational support, Behavioral disengagement, Venting, Positive reframing, Planning, Humor, Acceptance, Religion, and Self-blame. Second, the coping responses can be further grouped into two broad categories of coping strategies - approach and avoidant coping (Carver et al., 1989). Carver et al. (1989) conducted an exploratory factor analysis to examine the factor structure of the CBCI and provide information for subscale construction. Their study identified two major factors underlying the scale. The first component was represented by six items tapping coping responses generally conceived as avoidant, including denial, substance use, venting, behavioural disengagement, self-distraction, and self-blame. The other component was reflected by six items that describe approach coping, including active coping, positive reframing, planning, acceptance, seeking emotional support, and seeking informational support. Two ambiguous items loaded on both the approach and avoidant coping components, humor and religion, were excluded. There is no overall total score reported for this measurement, only total score for each of the subscales is reported. In this study, mean scores of approach and avoidant coping items were used in the analysis, with higher scores indicating increased utilization of that specific coping strategy. Compared to approach coping, avoidant coping has shown to be less effective at managing difficult situations (Eisenberg, Shen, Schwarz, & Mallon, 2012).

The reliability study of the CBCI indicated excellent Cronbach's alpha values for Substance use (α=0.90) and good values for Religion (α=0.82), Planning (α=0.73), Humor (α=0.73), Using Emotional Support (α=0.71), and Self-distraction (α=0.71). Cronbach's alpha values were reported good for Self-blame (α=0.69), Active coping (α=0.68), Behavioral disengagement (α=0.65), Positive Reframing (α=0.64), Using Instrumental Support (α=0.64) while denial (α=0.54), Venting (α=0.50), Acceptance (α=0.57), and Venting (α=0.50) were reported as poor (Carver, 1997). Cooper and colleagues reported convergent and concurrent validity as emotion-focused coping was predicted by secure attachment (β = 0.23) and by

problem-focused coping (β = 0.68); dysfunctional coping by burden (β = 0.36) and less secure attachment (β = −0.25) and problem-focused coping (β = 0.31; $p < 0.05$) (Cooper, Katona, & Livingston, 2008). This questionnaire also showed excellent reliability and acceptable validity in diverse populations such as caregivers of individuals with dementia, individuals with mild traumatic brain injury, medical students, and undergraduate students (Carver et al., 1989; Cooper, Katona, & Livingstone, 2008; Snell, Siegert, Hay-Smith, & Surgenor, 2011; Yusoff, 2010).

3.5.4 Measuring Social Support Level

In this study we wanted to investigate how international students perceive their friends, family members and significant others as sources of support during times of need. Therefore, a reliable and widely used subjective assessment of social support named Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) was selected. This self-report measure contains 12 statements, rated on a 7-point Likert scale (1 "very strongly disagree" to 7 "very strongly agree") to indicate how participants feel about each statement. The total score of MSPSS ranges from 12 to 84, in which higher scores indicate more perceived support (Zimet, Dahlem, Zimet, & Farley, 1988). The authors reported very good internal reliability (Cronbach's alpha of .84 to .92) for this scale as a whole and good construct validity (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). The MSPSS had been used in various studies assessing the relationship of perceived social support with students (Ogrodniczuk, Joyce, & Piper, 2003). For example, Clara et al. (2003) have used this scale among US student samples with good internal reliability with Cronbach alpha levels of .91, .87 and .85, for the Significant Other, Family, and Friends subscales, respectively. The MSPSS also had demonstrated adequate validity and reliability among American undergraduate students, Malaysian medical students, individuals with schizophrenia, and immigrants (Aroian, Templin, & Ramaswamy, 2010; Ng, Siddiq, Aida, Zainal, & Koh, 2010; Zimet et al., 1988).

3.5.5 Impact of COVID-19 on mental health

Three specific open-ended questions were designed to investigate the potential effect of COVID-19 on the mental health status of international students and how they dealt with the pandemic outbreak. The questions are demonstrated as below:

1. What is your overall experience regarding this pandemic situation?

2. If applicable, please describe any changes in your emotional status since the COVID-19 outbreak?

3. If applicable, please describe any strategies you use to cope with the COVID-19 outbreak?

3.6 Analysis Plan

3.6.1 Data management

Once the data collection was completed, the dataset was transferred from the Qualtrics Platform into the Statistical Package for the Social Science (SPSS®) version 27.0 (IBM, 2020) for analysis.

Descriptive statistics in terms of frequency and percentage were conducted to describe the sample's demographic information, including gender, age, marital status, the number of years of staying in Canada, degree level, program of study, and country of origin. The mean scores and standard deviation of the overall mental health (MHC-SF), psychological distress status (K-10), Coping style (CBCI), and social support level (MSPSS) were calculated, as well as the frequencies and percentages of their sub-categories. The assumption of normality of both dependent and independent variables was tested using the P-P-T plot and Frequency table even though the sample size was large (N=338) (Field, 2009). Independent-samples t-tests were conducted to compare the means of the four instruments (MHC-SF, K-10, CBCI, and MSPSS) between male and female participants. Moreover, one-way ANOVA tests were used to compare the means of the four instruments (MHC-SF, K-10, CBCI, and MSPSS) among degree levels and marital status of the sample. A Chi-square test of independence was utilized to determine whether there was a statistically significant difference between the expected frequencies and the observed frequencies of demographic variables (gender, degree level and marital status) and dependent variables (MHC-SF and K-10).

3.6.2. First Research Question

“What is the mental health status of international students based on Keyes's Dual Continuum Model of Mental Health and Mental Illness” was determined as the first research question in this study. The four quadrants of Keyes’s model were defined based on the MHC-SF sub-groups (flourishing, moderate, and languishing) scores and the answer to the one Yes/No self-report question regarding the previous history of mental disorder. The flourishing or

moderately healthy students were located in the Optimal Mental Health (upper quadrants) while the others who were languishing were placed in Poor Mental Health (lower quadrants). Both Optimal and Poor Mental Health sections were divided into two sections based on the existence/non-existence history of mental illness (left/right quadrants). Therefore, a cross-tabulation analysis was conducted to demonstrate the sample distribution in each quadrant.

3.6.3 Second Research Question

"Do coping skills and social support predict international students' mental health and subjective well-being status?" was the second research question in this study. The independent variables in this research question were approach coping and avoidant coping (CBCI) and social support level (MSPSS). Mean scores of approach coping and avoidant coping were calculated for each participant. Since the MSPSS questionnaire uses a Likert scale for scoring, it is considered as ordinal variables, but it is widely accepted by most statistical theorists to treat Likert scale scores as continuous variables (Leung, 2011). The dependent variables were the total score of subjective well-being (MHC-SF) and total score of psychological distress status (K-10), which were considered continuous variables. A Scatter Plot was used to visualize the positive or negative linear relationship between variables.

To measure the strength and statistical relationship between coping skills and social support and positive mental health and psychological distress, Pearson correlation coefficient analyses were conducted. This test is known as the best analysis method to measure the association between continuous variables (Benesty, Chen, Huang, & Cohen, 2009). First, a Pearson correlation (r) was used to assess the relationship between positive mental health score (MHC-SF), approach coping, avoidant coping, and MSPSS. Then another Pearson correlation (r) was conducted to assess the relationship between the levels of psychological distress scale (K-10), approach coping, avoidant coping, and MSPSS.

Secondly, multiple regression analysis was used to determine how changes in the independent variables (approach coping, avoidant coping, and MSPSS) are associated with changes in each dependent variable (MHC-SF and K-10). The process of conducting this analysis allowed us to determine which variable matter most, which variables or factors can be ignored, and how these variables influence each other (Chatterjee & Hadi, 2015). The four assumptions of doing multiple regression analysis including the linear relation between dependent and independent variables, the normal distribution of dependent variables, the assumption of homoscedasticity

(the homogeneity of variance), and no multicollinearity between independent variables were also checked (Fisher, 1993). The stepwise regression method was used to determine the order in which predictors were entered into the regression models. The forward selection method utilized by adding a variable to the regression equation one at a time to find the variable or variables with highest correlation with the outcome. As such the regression equation is constantly reassessed to check whether any redundant variable can be removed (Field, 2009). Hence, seven regression models were tested to determine the best model, which precisely assesses the ability of coping style and social support for the prediction of the levels of international students' subjective well-being (MHC-SF) as well as for the levels of psychological distress (K-10). The variance inflation factor (VIF) was used to check multicollinearity between the independent variables.

3.6.4 COVID-19 Open-ended Questions

A content analysis (Vaismoradi, Turunen, amp & Bondas, 2013) was performed to analyze responses to the three open-ended questions. Responses for each question were read several times to identify the important concepts and perspectives regarding the questions' contents. The common phrases or words were coded with a name which most directly described the content. Those codes which were related to each other were grouped into categories. Each category described different experiences including positive or negative experiences. Then preliminary themes with related examples were established for the three open-ended questions (Erlingsson & Brysiewicz, 2017). To increase the credibility of the results, the preliminary themes were revised by a second reviewer who was expert in the field of mental health (Lincoln & Guba, 1986). Moreover, reviewing both negative and positive answers to the questions and reviewing the data several times during the data analysis process served to reduce the impact of researcher bias, increase the trustworthiness of the results (Lincoln & Guba, 1986). Due to the sensitivity of the mental health topic among some cultures or beliefs, the chance of social desirability bias (one type of response bias) was higher since some students might tend to answer the questions in a manner that was viewed favorable by the society (not reporting struggling with mental health issues). In order to mitigate this bias, the survey was anonymous and no personal information was collected (Fisher, 1993).

3.7 Summary

This chapter presented the conceptual framework and the research methods that were used in this study, including information about the participants, procedures, instruments, and analysis plan with the purpose of exploring the mental health status of international students. The findings of this study will be discussed in the next chapter.

CHAPTER IV: Results

The present chapter will reveal the outcomes of the analysis in the context of this study's objectives.

The quantitative data from the Qualtrics Survey Platform were downloaded and exported to Statistical Package for the Social Science (SPSS®) version 27.0 (SPSS, Inc., 2013). The total number of students who opened the survey was 598, while 355 of them completed the survey. After cleaning the data, a total of 338 responses were valid for the purposes of the present research (N= 338). There were approximately 8000 international students studying at University of Alberta during the Winter and Spring 2020 semesters and we expected 20% (1600 students) of them participated in this study. However, due to the COVID-19 situation and working remotely from home, only 4% (338 students) successfully completed the survey. This low response rate might be because of not checking their emails regularly or paying less attention to their email contents; however, had sent the survey advertisement every other week for ten weeks to increase the response rate via the Global Beat bi-weekly newsletter and the Facebook page of The University of Alberta International.

4.1 Participant Demographics

Descriptive statistics of the sample regarding gender, age, marital status, the number of years of staying in Canada, degree level, program of study, and their history of any mental disorders are presented in Table 1.

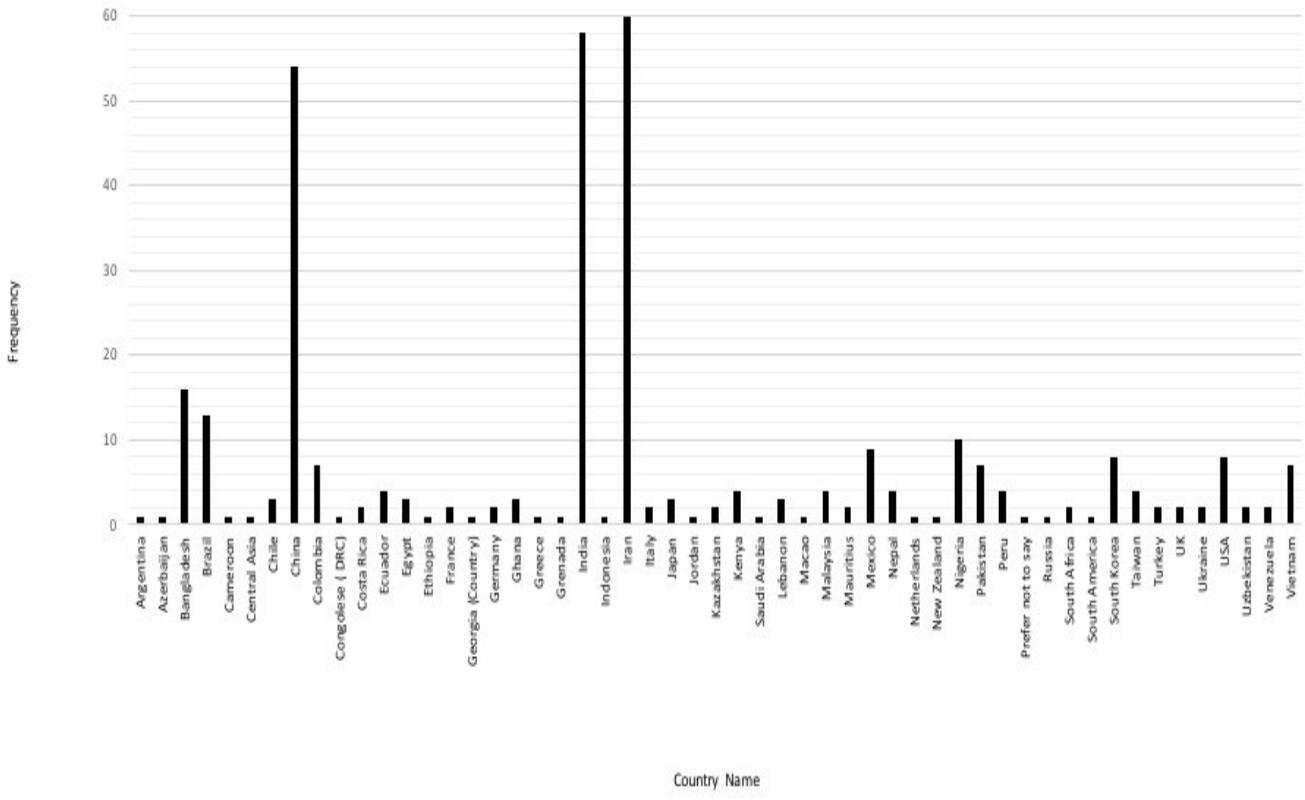
Table 1. Participant Demographic Profile (Total N= 338)

	n	%
Gender		
Female	203	60.05
Male	129	38.16
Prefer not to say and Other	6	1.77
Age (in years)		
18-22	145	42.89
23-28	120	35.50
+29	73	21.59
Marital status		
Single	288	85.20
Married	47	13.90
Other	3	0.88
Years in Canada		
< 6 months	17	5.02
6 months – 1 year	94	27.81
1-2 years	100	29.58
2-3 years	55	16.27
3-4 years	32	9.46
> 4 years	40	11.83
Degree level		
Undergraduate	149	44.08
Masters	106	31.36
Ph.D.	83	24.55
Faculty of Study		
Engineering	110	32.54
Science	91	26.92
Arts	43	12.72
Medicine and Dentistry	23	6.80
Law and Business	17	5.02
Rehabilitation and Kinesiology	15	4.43
Nursing	8	2.36
Education and Native studies	6	1.77
Have you been diagnosed or treated by a professional for any mental disorders previously?		
Yes	53	15.68
No	285	84.31

As shown in Table 1, female international students were more highly represented in the sample with 203 respondents (60%). The mean age of the participants was 24.8 years old and near 43% of the students were in the age group of 18-22. The majority of the participants were single (85%). Fifty-six percent of participants were at the graduate levels of study while 44% of participants were undergraduates. Studying in the faculty of Engineering, Science, and Education accounted for 60.94% of the total participants. Most of the international students (84%) did not report previous diagnosis or treatment for any mental disorders.

The sample represented international students from 53 countries. Participants from Iran (17%), India (17%), and China (16%) were the most frequent respondents in this study (see Figure 3). In total, 240 international students were from Asian countries, 35 from South America, 27 from African countries, 20 from North America, 14 from European countries, and 1 from New Zealand.

Figure 3. Country of Origin (Total N=338)



Based on the literature review (Chapter 2), several factors should be considered as demographic variables while investigating the mental health of international students. Therefore, descriptive statistics of the overall mental health (MHC-SF), psychological distress status (K-10), Coping style (CBCI), and social support level (MSPSS) of the sample in terms of their gender, degree levels, and marital status are presented in Table 2.

Based on the Normality analysis, dependent variables were normally distributed in this sample. Since the one-way ANOVA demonstrated that there were statically significant differences between the means scores of positive mental health and psychological distress and marital status and degree levels, Post Hoc pairwise comparisons were conducted to compare the means of each groups (marital status and degree levels) and to determine which means differ (Field, 2009). "The pairwise comparisons can control the family-wise error by correcting the level of significance for each test such that the overall Type I error rate (α) across all comparisons remain at .05" (Field, 2009, p.372-373). We used the most popular method to control the family-wise error, the Bonferroni corrections (Field, 2009). Levene's test was used to check the homogeneity of variance (Field, 2009).

Table 2. Descriptive and Inferential Statistics of (MHC-SF, K-10, CBCI, and MSPSS) (Total N= 338)

		Gender			Degree Level				Marital Status			
	Total (N=338)	**Male (n=129)**	**Female (n=203)**	**t (p) (T-Test)**	**Undergrad (n=149)**	**Masters (n=106)**	**PhD (n=83)**	**F (p) (ANOVA)**	**Single (n=288)**	**Married (n=47)**	**Other (n=3)**	**F (p) (ANOVA)**
MHC-SF												
Mean scores (SD)	37.91 (14.09)	36.91 (14.98)	38.80 (13.39)	-1.19 (.23)	38.77 (13.76)	36.42 (14.92)	38.28 (13.63)	.89 (.41)	37.62 (14.31)	39.98 (12.61)	34.00 (14.51)	0.68 (.50)
Flourishing (n, %)	79 (23.37%)	31 (9.17%)	47 (13.90%)		33 (9.76%)	25 (7.39%)	21 (6.21%)		66 (19.52%)	12 (3.55%)	1 (0.29%)	
Moderate (n, %)	221 (65.38%)	81 (23.96%)	138 (40.82%)		104 (30.76%)	65 (19.23%)	52 (15.38%)		186 (55.02%)	34 (10.05%)	1 (0.29%)	
Languishing (n, %)	38 (11.24%)	17 (5.02%)	18 (5.32%)		12 (3.55%)	16 (4.73%)	10 (2.95%)		36 (10.65%)	1 (0.29%)	1 (0.29%)	
K-10												
Mean scores (SD)	24.58 (6.85)	24.88 (7.55)	24.29 (6.37)	.76 (.44)	24.58 (6.75)	25.03 (7.45)	24.01 (6.27)	.63 (.53)	24.66 (6.82)	24.13 (6.67)	24.00 (12.08)	0.13 (.87)
Well (n, %)	87 (25.73%)	36 (10.65%)	51 (15.08%)		32 (9.46%)	31 (9.17%)	24 (7.10%)		73 (21.59%)	12 (3.55%)	2 (0.59%)	
Mild (n, %)	92 (27.21%)	36 (10.65%)	54 (15.97%)		47 (13.90%)	23 (6.80%)	22 (6.50%)		79 (23.37%)	13 (3.84%)	0 (0.00%)	
Moderate (n, %)	85 (25.14%)	25 (7.39%)	58 (17.15%)		40 (11.83%)	26 (7.69%)	19 (5.62%)		72 (21.30%)	13 (3.84%)	0 (0.00%)	
Severe (n, %)	74 (21.89%)	32 (9.46%)	40 (11.83%)		30 (8.87%)	26 (7.69%)	18 (5.32%)		64 (18.93%)	9 (2.66%)	1 (0.29%)	
CBCI												
Approach mean scores (SD)	32.25 (6.67)	30.62 (6.49)	33.39 (6.59)	-3.76* (.00)	31.71 (7.32)	31.80 (6.53)	33.79 (5.33)	2.97*(.03)	32.31 (6.87)	23.66 (4.56)	28.00 (3.74)	0.62 (.53)
Primary Approach (n, %)	290 (85.79%)	104 (30.76%)	182 (53.84%)		125 (36.98%)	89 (26.33%)	76 (22.48%)		246 (72.78%)	42 (12.42%)	2 (0.59%)	
Avoidance mean scores (SD)	23.73 (5.13)	23.41 (5.26)	23.98 (5.02)	-.98 (.32)	23.63 (5.44)	23.46 (5.10)	24.27 (4.61)	2.38 (.06)	23.73 (5.22)	32.19 5.44)	26.33 (5.55)	0.38 (.67)
Primary Avoidance (n, %)	31 (9.17%)	15 (4.43%)	14 (4.14%)		12 (3.55%)	13 (3.84%)	6 (1.77%)		25 (7.39%)	5 (1.47%)	1 (0.29%)	
MSPSS												
Mean scores (SD)	62.02 (14.00)	58.26 (15.23)	64.47 (12.73)	-4.00* (.00)	61.07 (15.27)	62.42 (13.48)	63.23 (12.21)	6.12*(.00)	61.20 (14.49)	66.64 (8.87)	68.00 (18.54)	3.36*(.03)

Note: n: number, %: percentage, SD: standard deviation, MHC-SF: Mental Health Continuum-Short Form, K-10: Kessler Psychological Distress Scale, CBCI: Carver Brief-Cope Inventory, MSPSS: Multidimensional Scale of Perceived Social Support, *: T-Statistic and F-value are significant at the 0.05 level.

Subjective well-being was assessed through the Mental Health Continuum-Short Form (MHC-SF). A total score was obtained by summing all of the 14 items. The three sub-groups- flourishing, moderate, and languishing- were identified based on the questionnaire's manual. Flourishing refers to the individuals who scored at least one of the first three items and at least six of the remaining items as "every day" or "almost every day." Languishing refers to individuals who scored at least one of the first three items and at least six of the remaining items as "never" or "once or twice." And individuals who do not fit in the flourishing or languishing sub-groups referred as Moderate. According to Table 2, the study sample (N=338) had a mean MHC-SF score of 37.91 (*SD* = 14.09). Mean scores of MHC-SF between male and female international students were not significantly different, $t(330) = -1.19$, $p = .23$. Mean scores of MHC-SF between undergraduate, masters, and Ph.D. international students were also not significant, $F(3, 334) = .89$, $p = .41$. Around 14% of female international students were identified as Flourishing while only 9% of males were identified as Flourishing. In addition, mean scores of MHC-SF between single, married, and other international students were not significantly different, $F(2, 335) = .68$, $p = .50$. Approximately 5% of both female and male and 10% of single international students were identified as Languishing. Most of the participants (65%) were Moderately mentally healthy. The distribution of Flourishing and Languishing were approximately the same among undergraduate, masters, Ph.D. international students.

The levels of psychological distress were measured using the Kessler Psychological Distress Scale (K-10). A total score was obtained by summing across the 10 items and then four different sub-groups- well, mild, moderate, severe- were identified based on the cut-off scores. As presented in Table 2, the study sample (N=338) had a mean K-10 score of 24.58 (*SD* = 6.85). Mean scores of K-10 between male and female international students were not significantly different, $t(330) = .76$, $p = .44$. Mean scores of K-10 between undergraduate, masters, and Ph.D. international students were also not significantly different $F(3, 334) = .63$, $p = .53$. Moreover, mean scores of K-10 between single, married, and other international students were not statistically significantly different, $F(2, 335) = .13$, $p = .87$. Around 26% of the international students were identified as likely to be well, which means these students might not be experiencing significant feelings of distress such as anxiety or depression. However, near 22% of the international students were likely to have a severe mental disorder, which refers to their experience of severe distress consistent with a diagnosis of severe depression

and/or anxiety disorder. Twenty-seven percent of participants were likely to have a mild disorder. Participants were distributed approximately equal in the four K-10 screening categories (i.e., well, mild, moderate, and severe).

Coping skills were evaluated by the Carver Brief-Cope Inventory (CBCI). A total score was obtained by summing across the 14 items and then the two sub-groups (approach and avoidant) were identified based on the questionnaire's manual. Mean scores of each group were calculated for each participant. Based on Table 2, the study sample (N=338) had a mean approach coping score of 32.25 (*SD* = 6.67) and a mean avoidant coping of 23.73 (*SD* = 5.13). In terms of coping styles, 86% of participants used approach coping as their primary coping style, while 9% primarily used avoidance coping style. Mean scores of approach coping style between male and female international students was statistically significant $t(330) = -3.76$, $p < .001$. Based on the t test results, female international students used more approach coping style when they were in difficult situations compared to their male peers. Mean scores of the approach coping style between undergraduate, masters, and Ph.D. international students were also statistically significant $F(3, 334) = 2.97$, $p = .03$. Post Hoc results indicated that Ph.D. students applied more approach coping when they struggled with complex problems in comparison to the masters and undergraduate students. However, there was no significant difference in using avoidant coping style between male and female participants, $t(330) = -.98$, $p = .32$ and between the degree levels, $F(3, 334) = 2.38$, $p = .06$. Mean scores of approach and avoidant coping styles between single, married, and other international students were not significant $F(2, 335) = .62$, $p = .53$ and $F(2, 335) = .38$, $p = .67$, respectively. These results indicate that there was no significant difference in terms of using coping strategies among students with different marital statuses.

The levels of perceived social support were measured using the Multidimensional Scale of Perceived Social Support (MSPSS). A total score was obtained by summing all of the 12 items. As shown in Table 2, the study sample (N=338) had a mean MSPSS score of 62.02 (*SD* = 14.00). Mean scores of MSPSS between male and female international students were significant demonstrating that female students perceived more social support than male students, $t(330) = -4.00$, $p < .001$). Mean scores of MSPSS between undergraduate, masters, and Ph.D. international students were also significant $F(3, 334) = 6.12$, $p < .001$. Post Hoc results represented that Ph.D. students perceived their friends, family members and others as

sources to provide them with support during times of need compared to their undergraduate and master's peers. In addition, mean scores of MSPSS between single, married, and other international students were also significant $F(2, 335) = 3.36$, $p = .03$. Post Hoc results demonstrated that married international students perceived more social support compared to their counterparts. Due to the low number of participants in the "other" group (n=3) the higher mean scores of MSPSS in this group did not show the statistically significant difference.

As indicated in Table 2, the mean score results of coping skills and social support level were found significant among genders (female and male), degree levels (undergraduate, masters, and Ph.D.) and marital statuses (single, married, other). So, we observed that female students and Ph.D. students have better coping skills and social support levels to handle their difficult situations compared to their counterparts. However, the independent-samples *t* tests and one-way ANOVAs did not show a significant difference between gender and degree level categories of mental health status (MHC-SF) and psychological distress (K-10). We also observed that married students demonstrated more perceived social support while the one-way ANOVAs did not show a significant difference in marital status for MHC-SF and K-10. Therefore, Pearson's Chi-Square test was conducted to evaluate any difference between the categories of gender, marital status and degree level for both MHC-SF categories (flourishing, moderate, and languishing) and K-10 categories (well, mild, moderate, severe). Based on Table 3 results, the relation between gender and MHC-SF and K-10 categories were statistically significant, $X^2(189, N = 338) = 430.04$, $p < .001$ and $X^2(105, N = 338) = 184.10$, $p < .001$, respectively. Therefore, female international students were more likely than their male peers to have better mental health status and lower psychological distress. Moreover, the relation between degree levels and MHC-SF and K-10 categories were statistically significant, $X^2(126, N = 338) = 156.21$, $p = .03$ and $X^2(70, N = 338) = 90.72$, $p = .04$, in order. Therefore, Ph.D. students were more likely to have better mental health status and lower psychological distress compared to their undergraduate and master's peers. The relation between marital status and MHC-SF and K-10 categories were also statistically significant, $X^2(126, N = 338) = 217.38$, $p < .001$ and $X^2(70, N = 338) = 104.46$, $p < .001$, respectively. The results of the Chi-square tests are depicted in Table 3.

Table 3. Chi-square test results for demographic variables (gender, degree level, marital status)

	MHC-SF			K-10		
	Gender	**Degree Level**	**Marital Status**	**Gender**	**Degree Level**	**Marital Status**
Pearson Chi-Square	430.04*	156.21*	217.38*	184.10*	90.72*	104.46*
P-Value	.00	.03	.00	.00	.04	.00
Phi	1.12	.68	.08	.73	.51	.55

Note: MHC-SF: Mental Health Continuum-Short Form, K-10: Kessler Psychological Distress Scale, Phi: measures effect size *: X^2 results are significant at the 0.05 level.

4.2 Distribution of Mental health status

To answer the first research question, respondents were asked to complete the Mental Health Continuum-Short Form (MHC-SF) (Keyes, 2006) questionnaire. The results of the overall mental health status based on the categories of MHC-SF questionnaire and self-identified history of mental disorders are displayed in Table 4. Around 23% of the participants were identified in the flourishing sub-group, while the majority of them (65%) were moderately mentally healthy and 11% reported languishing. Among 53 (16%) participants who were diagnosed or treated for a mental disorder previously, 11 (3%) reported flourishing, 32 (9%) were moderate mental health, and 10 (3%) reported languishing (poor mental health). For those who were not diagnosed/treated for a mental disorder before (n= 285; 84%), 68 (20%) identified as flourishing, 189 (56%) had moderate mental health, and 38 (11%) experienced languishing (poor mental health).

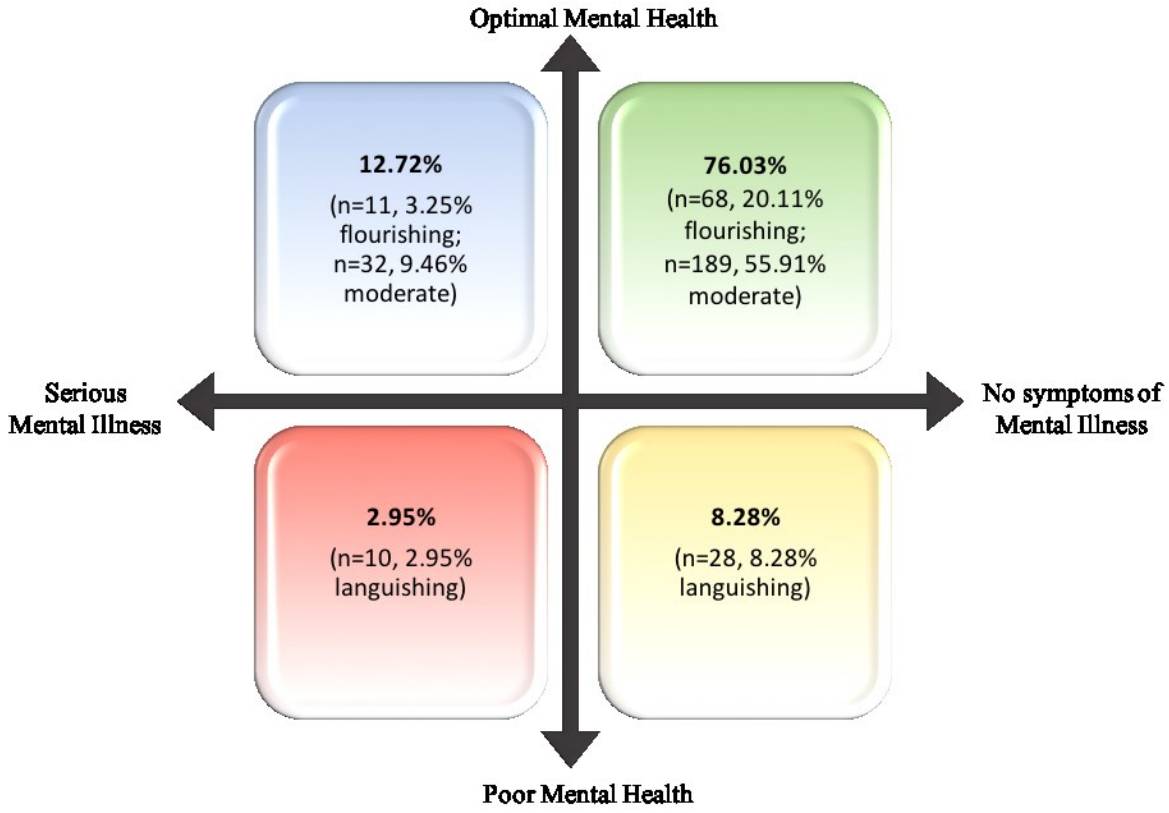
Table 4. Distribution of Mental Health Status (MHC-SF) and mental illnesses (N=338)

Have you been diagnosed or treated by a professional for any mental disorders previously?	**MHC-SF**			**Total n (%)**
	Flourishing n (%)	**Moderate n (%)**	**Languishing n (%)**	
Yes	11 (3.25%)	32 (9.46%)	10 (2.95%)	53 (15.68%)
No	68 (20.11%)	189 (55.91%)	28 (8.28%)	285 (84.31%)
Total	79 (23.37%)	221 (65.38%)	38 (11.24%)	338 (100.00%)

Note: n: number, %: percentage

Based on the Keyes's Dual Continuum Model of Mental Health and Mental Illness, optimal mental health (flourishing) represents one end of the vertical continuum, while poor mental health (languishing) represents the other end. In the horizontal continuum, serious mental illness represents one end, and an absence of mental illness diagnosis represents the other. It is essential to mention that the definition of mental health is not as simple as the absence of mental illness or the presence of high levels of subjective well-being. It is well described as a complete condition comprising the presence and the absence of mental illness and mental health symptoms (Keyes, 2002). The flourishing or moderately healthy students were located in the Optimal Mental Health while the others who were languishing were placed in Poor Mental Health (see Figure 1*)*. Based on data from Table 4, Figure 4 presents Keyes' Dual Continuum Model of Mental Health and Mental Illness distribution for this study participants.

Figure 4. Mental health distribution based on the Keyes' model (Total N=338)



As shown in Figure 4, 76% of international students were located in the quadrant of optimal mental health without any previous diagnosis/treatment of any mental disorders. On the other hand, 3% were located in the quadrant of poor mental health with a previous diagnosis/treatment of mental disorders. However, near 13% of the participants who have been diagnosed or treated for any mental illness experienced optimal mental health, while 8% had poor mental health without the previous history of mental disorders.

In addition, the participants were asked to answer Kessler Psychological Distress Scale (K-10) (Kessler et al., 2002) regarding their psychological distress status. The K-10 results indicated that international students' psychological distress was distributed approximately equally in the well, mild, moderate, and severe categories while based on the MHC-SF results, 76% of international students were mentally healthy and only 3% had poor mental health. Since the MHC-SF questionnaire measured positive mental health and the components of positive well-being (psychological, emotional, and social) and the K-10 scale evaluated non-specific psychological distress related to depression and anxiety, the discrepancy between their results could be justified. It should be mentioned that a negative and moderate correlation was calculated between K-10 and MHC-SF scores (r= -0.61; p <.001, 95% *CI*: -0.68 - -0.53).

4.3 Coping skills and social support in predicting positive mental health

To answer the second research question regarding the contribution of coping skills and social support on mental health and subjective well-being status, first, a Pearson correlation coefficient analysis (r) was conducted to assess the relationship between positive mental health score (MHC-SF), and each of the three independent variables - approach coping, avoidant coping, and social support level (MSPSS). A low positive correlation was found between MHC-SF and approach coping style; r = .34, p <.001 with higher scores on approach coping style being associated with higher scores on mental health. A further moderate positive correlation was found between MHC-SF and MSPSS; r = .51, p <.001, with higher scores on MSPSS being associated with higher scores on mental health. A negative, low correlation was found between MHC-SF and avoidant coping style; r= -.27, p <.001 with higher scores on avoidant coping style being associated with lower scores on mental health. Among the three independent variables, the highest correlation was observed between the approach coping style

and the MSPSS (r = .41, p <.001) while the avoidant and the MSPSS showed the lowest correlation (r = -.17, p <.001). Of note, avoidant coping was negatively correlated with the other three variables. The Pearson correlation coefficient Results are demonstrated in **Error! Not a valid bookmark self-reference.**.

Table 5. Pearson Correlation Results (MHC-SF, Coping Styles, and MSPSS)

	MHC-SF	Approach	Avoidant	MSPSS
MHC-SF	1.00	.34*	-.27*	.51*
Approach		1.00	-.27*	.41*
Avoidant			1.00	-.17*
MSPSS				1.00

Note: *Correlation is significant at the 0.01 level (2-tailed).

In order to determine the best model to assess the ability of coping style and social support for prediction of the subjective well-being, seven regression models were tested based on the stepwise regression method (see Table 6). The first three models examined one independent variable at a time (approach coping style, avoidant coping style, and social support level respectively). Models 4, 5, and 6 consisted of two out of the three variables. The final model made up of all three independent variables. The coefficient of multiple determination (R^2) was checked to examine how well each model explained the data. This value quantified how much of the variance in the dependent variable was accounted for by the independent variables entered into the model. The higher the value of R^2, the better the predictive power of the model. The overall (F) test for each model was considered, since it could determine how well the overall regression model predicted the dependent variable.

Another important step in choosing the best model among various multiple regression models is to ensure that the assumption of no multicollinearity has been met. Multicollinearity is a statistical phenomenon in which two or more independent variables in a multiple regression model are highly correlated with each other. Two different ways were used to detect the multicollinearity in this study including the Pearson Correlations and the variance inflation factor (VIF). The Pearson Correlations were calculated among the three independent variables (Table 5). As none of the correlations reached the .80 threshold, none of the independent variables were closely related. The variance inflation factor (VIF) was also used to check multicollinearity (Table 6). Any VIF value higher than 10 or lower than 0.10 indicates a

potential problem of multicollinearity (Hair, Anderson, Babin, & Black, 2010). As all the VIF values sit between 0.10 to 10, no multicollinearity was detected. Therefore, the final model (Model 7) with the highest R-square was selected as the best model fitted with the data. The summary of these seven regression models and coefficients results are demonstrated in Table 6 and Table 7.

Table 6. Regression Model Options Summary of MHC-SF

Model	F	R	R^2	(adj) R^2	P-value	Std. E	IV_1	IV_2	IV_3	VIF
1	43.90	.34	.11	.11	< .001	13.27	*			1.00
2	28.22	.27	.07	.07	< .001	13.56		*		1.00
3	122.42	.51	.21	.26	< .001	12.08			*	1.00
4	59.85	.51	.26	.25	< .001	12.13	*	*		1.07
5	67.14	.53	.28	.28	< .001	11.94	*		*	1.20
6	72.87	.55	.30	.29	< .001	11.80		*	*	1.03
7	61.39	.59	.35	.35	< .001	11.370	*	*	*	IV_1 (1.41) IV_2 (1.20) IV_3 (1.35)

Note: adj R2: Adjusted R-Squared, Std. E: Standard Error, IV_1: Approach coping style, IV_2: Avoidant coping style, IV_3: Social support level, VIF: Variance inflation factor

Table 7. Coefficients Results of the best model (Model 7)

Model		Unstandardized Coefficients		t	Sig	95% Confidence Interval for B	
		B	St. E			Lower Bound	Upper Bound
7	Constant	16.80	4.46	3.76	.000	8.02	25.58
	Approach Coping	.61	.11	5.20	.000	.38	.84
	Avoidant Coping	-.79	.13	-5.98	.000	-1.0	-.53
	Social Support	.35	.05	6.91	.000	.25	.45

Note: St. E: Standard Error

Participants' predicted mental health is equal to 16.80 + .610 (approach coping style) - .79 (avoidant coping style) + .35 (social support level) + 4.46. The analysis showed that the three variables, approach coping style (*Beta* = .61, $t(337) = 5.20$, $p < .001$), avoidant coping style (*Beta* = -.79, $t(337) = -5.98$, $p < .001$), and social support level (*Beta* = .35, $t(337) = 6.91$, $p < .001$), were significant predictors of positive mental health, and explained a significant proportion of variance in MHC-SF scores, R^2 of .36, $F(3, 334) = 61.39$, $p < .001$). Each of the three variables explained a significant amount of unique variance in positive mental health.

4.4 Coping skills and social support in predicting psychological distress level

A Pearson correlation coefficient analysis was conducted to assess the relationship between the levels of psychological distress scale (K-10), coping styles (approach and avoidant), and social support level (MSPSS). A low negative correlation was found between K-10 and approach coping style; $r = -.18$, $p < .001$ with higher scores on approach coping style being associated with lower scores on psychological distress. A moderate negative correlation was found between K-10 and MSPSS; $r = -.45$, $p < .001$, with higher scores on MSPSS being associated with lower scores on psychological distress. A positive moderate correlation was found between K-10 and avoidant coping style; $r = .47$, $p < .001$ with higher scores on avoidant coping style being associated with higher scores on psychological distress. Among the three independent variables, the highest correlation was observed between the approach coping style and the MSPSS ($r = .41$, $p < .001$) while the avoidant coping style and the MSPSS showed the

lowest correlation (r = -.17, p <.001). The Pearson correlation coefficient Results are shown in Table 8.

Table 8. Pearson Correlation Results (K-10, Coping Styles, and MSPSS)

	K-10	Approach	Avoidant	MSPSS
K-10	1.00	-.18*	.47*	-.45*
Approach		1.00	-.27*	.41*
Avoidant			1.00	-.17*
MSPSS				1.00

Note: *Correlation is significant at the 0.01 level (2-tailed).

Seven different models were tested to specify the best model which precisely assesses the ability of coping style and social support for prediction of the levels of psychological distress based on the stepwise regression method (see Table 9). The first three models examined one independent variable at a time (approach coping style, avoidant coping style, and social support level respectively). Models 4, 5, and 6 consisted of two out of the three variables. The final model included all three independent variables.

Based on the above-mentioned explanation of choosing the best model, the final model (Model 7) with the highest R-square was selected as the best model fitted with the data. As none of the correlations reached the .80 threshold, none of the independent variables were closely related Table 8). As all the VIF values sit between 0.10 to 10, no multicollinearity was detected (Table 8). The summary of these seven regression models and coefficients results are demonstrated in Table 9 and Table 10.

Table 9. Regression Model Options Summary of K-10

Model	F	R	R^2	(adj) R^2	P-value	Std. E	IV_1	IV_2	IV_3	VIF
1	12.15	.18	.03	.03	< .001	6.74	*			1.00
2	98.79	.47	.27	.22	< .001	6.03		*		1.00
3	88.36	.45	.20	.20	< .001	6.11			*	1.00
4	84.19	.58	.35	.33	< .001	5.61	*	*		1.07
5	44.05	.45	.20	.20	< .001	6.11	*		*	1.20
6	98.41	.60	.37	.36	< .001	5.45		*	*	1.03
7	73.32	.63	.39	.39	< .001	5.33	*	*	*	IV_1 (1.41) IV_2 (1.20) IV_3 (1.35)

Note: adj R2: Adjusted R-Squared, Std. E: Standard Error, IV_1: Approach coping style, IV_2: Avoidant coping style, IV_3: Social support level, VIF: Variance inflation factor

Table 10. Coefficients Results of the best model (Model 7)

Model		Unstandardized Coefficients		t	Sig	95% Confidence Interval for B	
		B	St. E			Lower Bound	Upper Bound
7	Constant	24.53	2.10	11.68	.000	20.40	28.66
	Approach Coping Style	-.21	.05	-3.86	.000	-.32	-.10
	Avoidant Coping Style	.63	.06	10.22	.000	.51	.76
	Social Support Level	-.14	.02	-5.88	.000	-.19	-.09

Note: St. Error: Standard Error

Participants' predicted psychological distress is equal to 24.53 + .63 (avoidant coping style) - .21 (approach coping style) - .14 (social support level) + 2.10. The analysis showed that the three variables, approach coping style (*Beta* = -.21, $t(337) = -3.86$, $p < .001$), avoidant coping style (*Beta* = .63, $t(337) = 10.22$, $p < .001$), and social support level (*Beta* = -.14, $t(337) = -5.88$, $p < .001$), were significant predictors of psychological distress, and explained a significant proportion of variance in K-10 scores, R^2 of .39, $F(3, 334) = 73.32$, $p < .001$). Each of the three variables explained a significant amount of unique variance in psychological distress.

4.5 The impact of COVID-19 on mental health of international students

All responses to the three open-ended questions exported into an Excel file for content analysis. The three questions contained information regarding the pandemic's overall experiences, reporting any changes in emotional status since COVID-19, and describing any used strategies to cope with this outbreak. Among the 338 participants, 265 answered the first question, and 242 and 160 responded to the second and third question respectively. In total, around 66% of the sample replied to the three open-ended questions. Five themes regarding the impact of COVID-19 were identified based on the responses: (1) following public health guidelines, (2) working from home, (3) new lifestyle, (4) uncertain future, and (5) dealing with the pandemic. According to the results, international students reported different experiences; however, most of them (65%) had a negative experience with this pandemic and emotionally suffered from COVID-19 situation. Some participants said they were stressed out at the beginning of the outbreak and could not do anything at home except to follow the news. However, as time passed, they got used to this new situation and found several ways to cope with challenges. However, some participants stated that even after several months since the beginning of the outbreak, they could not accept the new reality and their health status, both physically and mentally, became exacerbated.

1. Following public health guidelines: Participants reflected divergent experiences regarding following the public health safety protocols including staying at home and isolating themselves. Some expressed that they felt safer because of the quarantine since they had less interaction with other people and the risky environment, for example, participant #125 shared:

“It’s been great. I feel safer than in my country. No need to go out and contact people.” They also stated that they could spend more time with their partners or family members as they have to stay at home. In addition, for those students who were introverts, this isolation was a satisfying experience: “I don’t feel too much about staying at home as an introvert, but fear for self-safety when going out” (Participant #105); “I'm feeling more connected to my life. Not communicating with other people has made me calmer and more concentrated on myself and things that are really important to me” (Participant #164). On the other hand, some participants pointed out negative feelings and experiences regarding the quarantine. Feeling isolated, loneliness, feeling trapped at home, anxiety episodes, feeling depressed, and being overwhelmed were dominantly reported as detrimental effects of staying home due to the quarantine. Participant #13 wrote: “Cabin fever is a perfect storm for me during this difficult time”; and participant # 40 expressed: “I have been home alone since this started (40 days now). I don't have anyone to help me.”

2. Working from home: International students’ experiences working from home varied. Some found this situation as an opportunity to focus more on their course works or research projects. They reported that working from home was more relaxed because there was less pressure on them. They also found themselves more productive compared to the time when they worked in their labs or offices since they were able to manage their time more efficiently. “It was helpful to me; I am more productive I save my energy to focus on my research rather than commuting to university or doing what is unnecessary” (Participant #8) or “More willing to stay home than spending time with people. More willing to find things to do at home” (Participant #338). However, other students felt bored and less productive while working from home. They reported difficulties of concentrating on their academic duties since they could be easily distracted at home. “it was hard to find the good rhythm to be productive from home, I struggle to be as productive from home as I usually am at the office” (Participant #313) or “I cannot motivate myself every day to work or be productive, then I feel guilty. I am worried if I do not work enough” (Participant #52). For those international students who moved back to their home country due to this pandemic, working from home was much more problematic because of the different time zones.

3. New lifestyle: The participants declared that this pandemic and the safety protocols issued by the university and the government, have changed their lifestyle. Some students modified

their daily routines to take more advantage of this pandemic by spending more time with their family members, creating new health routines (physically and mentally) and paying more attention to themselves. “I have been trying to inculcate good habits such as working out, cycling, cooking and meditating. I have reduced the intake of alcohol and be positive” (Participant #256) or “try to do different activities every day, be with my family, and listen to music” (Participant #75). They also expressed that this new lifestyle provided more opportunities for them to develop new skills, complete their unfinished previous projects, and set new goals for their future. “Manage my time. Find something to do keep my mind busy. Face myself and work towards a better version of myself” (Participant #64) or “Set myself a routine. Accept this as my new reality and adapt. Find new hobbies. Learn to play piano” (Participant #133). On the other side, some international students found this new life routine challenging which was beyond their control. They stated that the pandemic has destroyed their plans, for instance, “There will be no summer job for me” (Participant #49). Their academic progress has been decreased due to the new restrictions for research studies or class activities, like participant #87’s “Feeling of stagnation in my life's progress”. In addition, they expressed that their physical activity routines such as daily exercises or gym classes have been affected due to the COVID-19 pandemic which resulted in physical fatigue or even gaining weight: “I stopped doing exercise and now my legs hurt randomly throughout the day. I know I should be more active, but I’m stuck inside” (Participant #98) or “I live in an apartment and I cannot do exercises indoors, so I think I am getting fatter and uglier these days” (Participant #99).

4. Uncertain future: Most of the students experienced the high level of anxiety and depressive mood, worries about their future status as an international student here in Canada since the beginning of this pandemic. They expressed that this situation made their future unstable and unexpected, and they are becoming worried and anxious about their financial status. “I’ve been more anxious and worried about the future and the impact this may have on pursuing my Ph.D. degree” (Participant #78) or “I have been having a lot of negative thoughts. This situation has made me realize how unpredictable and fragile life is. It's making me rethink my decision of being so far away from my family” (Participant #122) or “I feel stressed, nervous, unsure, insecure and worried about the financial stuff and job after I graduate as I have the burden of student loan and family responsibility” (Participant #179). They also reported their concerns regarding their friends and families’ health status back home as well as their plans to visit their families in near future. Due to the travel restrictions and decreased number of flights, most of

the international students felt worried of not being able to visit their family or friends not only in this summer but also in the near future. “I feel very anxious about not being able to go home someday” (Participant #40) or “It's very overwhelming. I'm stuck here in Canada while my family is back in Nigeria and that makes me feel lonely sometimes. I really miss them” (Participant #182).

5. Dealing with pandemic: According to the students’ responses to this pandemic situation, they employ several methods to overcome the challenges and difficulties of staying at home while focusing on their academic responsibilities. Some of them figured out various ways to accept this situation more easily by doing relaxation activities such as medication or yoga, setting new daily routines to follow, and performing spiritual activities. “Guided meditation and mindfulness practice helped me a lot. Finding other activities like painting online with other friends and exercising with my roommates made it better to cope with the outbreak” (Participant #333) or “I am meditating and praying a lot. I talk to my family for more time than usual” (Participant #204). Other students ignored their feelings or reactions to this situation and distracted themselves by drinking or using drugs. “Alcohol, Marijuana, Tobacco, Sleeping pills. These are my strategies” (Participant #44). Therefore, it should be highlighted that students responded to the COVID-19 pandemic differently and utilized a variety of ways to cope with it.

CHAPTER V: Discussion, Conclusion and Directions for Future Research

The final chapter of this study begins with a summary of the study's results and primary objectives. Next, a discussion regarding the findings whether to be consistent with the current literature or not is included in this chapter. The remaining sections involve limitation and conclusion, the implications of the present study, and recommending directions for future research on international students' mental health.

5.1 Summary of the results

The purpose of this study was to explore the mental health status of both undergraduate and graduate international students studying at one Canadian university based on Keyes's Dual Continuum Model of Mental Health and Mental Illness. This study also investigated the association between coping skills and social support and student mental health. A cross-sectional survey design was employed using an online survey during the Winter and Spring 2020 semesters. Due to the COVID-19 pandemic and working remotely from home, only 4% of the total number of international students (338 students) completed the survey. The sample represented international students from 53 countries in which students from Iran, India, and China were the most frequent respondents. Female international students were more highly represented in the sample (60%). The majority of the participants were single (85%). Fifty-six percent of participants were at the graduate levels of study, while 44% were undergraduates.

Based on Keyes's Dual Continuum Model of Mental Health and Mental Illness, 76% of international students were located in the quadrant of optimal mental health without any previous diagnosis/treatment of any mental disorders. On the other hand, 3% were found in the quadrant of poor mental health with an earlier diagnosis/treatment of mental disorders. However, nearly 13% of the participants experienced optimal mental health and had previously been diagnosed or treated for any mental illness. In comparison, 8% had poor mental health without a previous history of mental disorders. The analysis showed that approach coping style, avoidant coping style, and social support level were significant predictors of positive mental health and psychological distress among international students. Female participants, Ph.D.

students, and those who married demonstrated better mental health status and lower psychological distress than their counterparts.

The international students reported various experiences and impacts of COVID-19, which were presented in five themes: (1) following public health guidelines, (2) working from home, (3) new lifestyle, (4) uncertain future and (5) dealing with the pandemic. Most of the respondents to those questions (65%) had a negative experience with this pandemic and emotionally suffered from the COVID-19 situation. However, some of the students had positive experiences regarding COVID-19 pandemic, such as developing new skills, spending more time with their family, doing more indoor exercises, feeling safer, and experiencing less pressure on doing their course work.

5.2 Discussion of results

5.2.1 Mental health status of international students

The present study's first goal was to explore the international students' overall status of mental health. We used the Keyes's Dual Continuum Model of Mental Health and Mental Illness alongside the Mental Health Continuum-Short Form (MHC-SF) (Keyes, 2006) questionnaire in this research to investigate the mental health status of international students studying at the University of Alberta. Keyes's Dual Continuum Model of Mental Health and Mental Illness has been utilized in several studies and conceptualize positive mental health and mental illness as distinct factors yet related which co-occurring on the orthogonal axes contributing to overall mental health functioning (Westerhof & Keyes, 2010; Iasiello & Van Agteren, 2020). MHC-SF is the most reliable measurement of positive mental health or flourishing based on the literature (Iasiello & Van Agteren, 2020). Consistent with past research studies completed among 1245 Canadian college students (Peter, Roberts, & Dengate, 2011) as well as among 5,689 college students in the US (Keyes et al., 2012), this study found that most of the students (65%) were moderately mentally healthy. Around 23% of the participants were identified as flourishing, and 12% had poor mental health (languishing). In line with the Keyes' findings (2005) among 3,032 adults in the US, this study also found that 76% of international students were located in the optimal mental health quadrant without previous history of any mental disorder while 3% of them were found in the poor mental health quadrant with previous treatment/diagnosis of mental disorders. The specific challenges and problems of living and

studying in a foreign country could play an essential role in moving from a state of languishing to flourishing. At the same time, mental health is seen as a continuum. With early identification and support, mental health issues can often be managed, and the can students return to a healthy, fully functioning state.

The Kessler Psychological Distress Scale (K-10) (Kessler et al., 2002) was also employed in this study to evaluate the psychological distress status of international students. Inconsistent with findings from the literature (Clough, Nazareth, Day, & Casey, 2019; Skromanis et al., 2018; Lu, Dear, Johnston, Wootton, & Titov, 2014), the distribution of K-10 screening categories in this study was approximately equal, indicating that a higher proportion of students experienced moderate and severe mental distress than the general population. This inconsistency with previous literature could be attributed to the influence of COVID-19. This study was conducted during the first spread of COVID-19 and the related strict public health guidelines in Alberta. This environment may have caused anxiety because of the unknown status of this virus or depression due to the mandatory work-from-home order and quarantine.

Overall, 88.8% of the study participants reported flourishing or moderate mental health, whether with or without previous history of mental illnesses, which placed them on the upper quadrants of the Keyes' Dual Continuum Model of Mental Health and Mental Illness. However, there is a concerning proportion (8.3%) of international students who do not have a diagnosable mental illness but are languishing. Specific attention should be paid to this group as they experience poor mental health while they may not receive any professional support. This group needs to be monitored closely regarding their potential challenges and stressors, which make them languish. Campus mental health strategic plan should focus on crisis prevention and mental health promotion for this group. Also, the situation of the COVID-19 pandemic has exerted a significant influence on the psychological distress of this population. Nearly 16% of the international students were diagnosed or treated for a mental disorder previously. Among this group, 13% reported optimal mental health, whereas 3% reported poor mental health. It can be assumed that 13% of international students were able to manage their mental challenges well while studying and living in a foreign country. While the results from the present study are not generalizable to the broader international student population across Canada given the sample of 338 participants (4% of the total international students at the University of Alberta),

these findings nonetheless demonstrate the need for further research concerning the mental health outcomes of international students.

5.2.2 The impact of coping skills and social support on mental health

The present study's second objective was to assess the contribution of coping skills and social support to international students' mental health and psychological distress status. Coping skills were evaluated with a Carver Brief-Cope Inventory (CBCI) (Carver, 1997), and social support was measured through the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988).

The current study did echo previous research on coping skills as a predictor of the mental health and psychological distress for international students (Alharbi & Smith, 2018; Mesidor & Sly, 2016; Ra & Trusty, 2015; Sapranaviciute, Padaiga, & Pauzienė, 2013; Khawaja & Stallman, 2011; Kanekar, Sharma, & Atri, 2010; Sumer, 2009; Khawaja & Dempsey, 2007; Misra, Crist, & Burant, 2003; Yeh & Inose, 2003). In line with the literature, the present study revealed that most international students used approach coping as their primary coping style, including using beneficial strategies such as taking active actions to solve the stress-related problems (Ra & Trusty, 2015; McClure, 2007). The approach coping skills, including active coping, planning, acceptance, seeking emotional support, and seeking informational help, have contributed to better mental health among international students (Alharbi & Smith, 2018; Chavajay, 2013; Zhang, 2012; McClure, 2007; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004; Yeh & Inose, 2003, Cross, 1995).

In line with the previous findings (Sumer, 2009; Rosenthal, Russell, & Thomson, 2008), female international students were found to use more approach coping strategies when they were in difficult situations and were likely to have better mental health status than their male peers. This result might be because women are more likely to seek help, disclose their mental health problems to their friends or family members, more resilient, stay connected with their sources of support than men (Mackenzie, Gekoski, & Knox, 2006). This is in contrast to existing masculine norms, personal stigma, and gender-based expectations in the community and the campus culture in terms of men's mental health. Masculinity and men's social connections could play an essential role in men's mental health status (Juvrud & Rennels, 2017; Hill & Donatelle, 2005). Male students were less likely to express their feelings and mental health

problems to their friends or family members, and their social support networks were more limited since seeking support went against their role expectations focusing on maintaining strength and emotional restraint (Wester, Christianson, Vogel, & Wei, 2007). Wester et al. (2007) reported that social support played a mediator role between gender role conflict patterns and psychological distress among male undergraduate students. Therefore, men who have higher scores on Restricted Emotionality (RE) and Restricted Affectionate Behavior Between Men (RABBM) (two patterns of gender role conflict) likely had lower levels of social support resulting in their increased psychological distress level.

Moreover, findings from this study indicated that Ph.D. students applied more approach coping when they deal with complex problems in comparison to the masters' and undergraduates' students. Ph.D. students might have more experience managing academic stressors and maintain a work-life balance while completing their program. Hence, they might use more practical skills such as approach coping strategies to deal with their challenges and solve their problems. This result was in contrast with the previous findings, which reported a high prevalence of anxiety and depression among graduate students, especially PhD students (Van Der Heijde, Douwes, &Vonk, 2019; Evans, Bira, Gastelum, Weiss, & Vanderford, 2018). This conflict might be due to the different population sample (domestic students), other countries (US and UK), and also these studies did not compare their results with undergraduate students.

In addition to coping skills, perceived social support was found to be a predictor of mental health and psychological distress among international students in the present study. Previous investigations (Alharbi & Smith, 2018; Mesidor & Sly, 2016; Chavajay, 2013; Zhang, 2012; Khawaja & Stallman, 2011; Kanekar, Sharma, & Atri, 2010; Dao, Lee, & Chang, 2007; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004; Lee, Koeske, & Sales, 2004; Misra, Crist, & Burant, 2003) have indicated that social support positively impacted the mental health outcomes of post-secondary students, and played an encouraging role to healthy adjustment to the post-secondary environment (Byrd & McKinney 2012; Hefner & Eisenberg 2009; Irons & Gilbert 2005). This study also found that Ph.D. students demonstrated a higher level of perceived social support than the other groups of students. It might be because Ph.D. students are more mature (they tend to not be in their early 20's) and may have more experience in building social networks in the Canadian context. Expanding social networks to increase their

resourcefulness will determine how well they adapt to psychological distress and find mental health support.

There are several stressors that international students may struggle with beyond the general stressors other than post-secondary students experience, such as acculturative stress, English Language proficiency, dissimilar educational systems, perceived discrimination, and academic stress. Findings from the present study demonstrated that coping skills, as one of the psychological factors, and perceived social support, as one of the social factors, are predictors of international students' mental health and psychological distress. Therefore, the findings of this study could be beneficial for health care professionals or others who are in close contact with international students, to have better understating of the factors which could directly impact the mental health of international students. Given the findings of this study, professionals who work with international students could focus on coping skills training, building support networks, and providing multidimensional mental health services such as counselling.

This study also demonstrated that male and undergraduate international students tend to use more avoidant coping skills and have low perceived social support. Special programs or interventions are indispensable at the university level to investigate their problems, target their needs, develop their coping skills (use of approach coping strategies), improve their resilience, and develop social support groups to enhance their mental health and lessen their psychological distress level.

5.2.3 The impact of COVID-19 on mental health

The content analysis of the open-ended questions in this study revealed four main themes regarding the international students' experiences of the COVID-19 pandemic. Participants reported various experiences; however, most of them had a negative experience with this pandemic and emotionally suffered from the COVID-19 situation. In line with the recent literature (Rajkumar, 2020; Sahu, 2020; Son, Hegde, Smith, Wang, & Sasangohar, 2020; Wang, Hegde, Son, Keller, Smith, & Sasangohar, 2020), this study revealed that this pandemic could impact on the psychological distress level among international students. This study also highlighted the impact of unpredictability, uncertainty, and seriousness of the disease on mental health. Only one article explored the impact of the COVID-19 pandemic on international

students in Canada. Firang (2020) interviewed five international students over the phone regarding their emotional and financial distress during this pandemic. He expressed the role of social workers in alleviating the impact of COVID-19 by developing resilience among international students to cope with the anxiety and trauma due to the pandemic's effects and helping university communities provide basic needs of food and shelter for this population (Firang, 2020). The present study found some positive experiences regarding the COVID-19 pandemic in the current study, including learning new skills, spending more time with family members, and feeling safer about working from home. According to the previous literature, most of the studies tend to look at the pandemic's negative side, though some students did find some positive responses in this study. Therefore, due to the heterogeneous experiences among students, it is worthwhile to provide opportunities for students to share their knowledge and learn from each other regarding managing this pandemic and using various strategies to maintain their health and well-being.

5.3 Conclusion and implications

There has been growing concern regarding the mental health issues of post-secondary students among higher education institutions across the world including North America (Bernaras Iturrioz, Insúa Cerretani, & Bully Garay, 2018; Chen, Liu, Zhao, & Yeung, 2015; Canadian Association of College & University Student Services, 2013; Hunt & Eisenberg, 2010). The majority of the existing literature exploring post-secondary international student mental health has been done in the American context, and little work has been done to examine international students' mental health status in Canadian universities. The present study contributes to the current body of literature on international student mental health in Canada. It is, to my knowledge, the first study to explore the mental health status of international students based on the Keyes's Dual Continuum Model of Mental Health and Mental Illness and to conduct an in-depth analysis of the potential factors hypothesized to predict international students' mental health outcomes. Specifically, this study examined a sample of over 330 University of Alberta international students' use of coping mechanisms, perceived social support, and their contributions to the mental health status and the psychological distress status. This study also explored international students' experiences regarding the COVID-19 pandemic and the effect of this outbreak on their psychological distress level, which adds novelty to the current research. Our findings indicated that most international students reported optimal mental

health; however, nearly half of the students experience moderate to severe psychological distress during the COVID-19 pandemic. Furthermore, the results demonstrated that female, married, and Ph.D. international students have better mental health status and lower psychological distress than their counterparts.

There are several implications of this study for universities. First, universities should draw attention to their male and undergraduate international students, as they have shown a lower level of perceived social support and use more avoidant coping strategies. It is highly recommended to develop integrated support programs between international student services and the health centre at universities to address this particular population's mental health and well-being needs and assist them with their mental health concerns. Special mental health programs can be designed and offered to male and undergraduate international students to target their mental health concerns, improve their ability to identify mental illness symptoms, gain an adequate understanding of the available mental health resources, and educate appropriate coping techniques. To decrease self-stigma, normalize help-seeking behaviours, and reframe masculine norms among male students, the university can provide special peer support groups (Poyrazli & Grahame, 2008; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004) to encourage students to express their feelings in a positive non-judgemental environment. Second, the university health services could allow international students to meet other students with similar mental health concerns and receive valuable information regarding the available health-related resources on campus. In addition to incorporating mental health educational programs into undergraduate international students' curriculum regarding mental health issues and its impact on physical health and academic success, faculties are suggested to raise awareness among all students and provide support groups for their undergraduate students. Third, it is recommended for universities to promote using approach coping strategies among this group by offering some coping skills workshops, designing skill training groups to develop approach coping skills (Olivas & Li, 2006), and distributing educational handouts regarding the type of coping strategies and their effects on mental health. Finally, this study encouraged universities to systematically launch periodic mental health screenings to identify students who are at risk for poor mental health (languishing) and provide support programs to prevent mental health problems for this population. A group of health professionals from universities including occupational therapists, social workers, and counsellors could work collaboratively to assist

this group of students in maintaining their positive mental health level, reducing their psychological distress level and developing their coping skills.

Due to the COVID-19 outbreak, this study demonstrated that most of the international students were struggling with psychological distress. Therefore, universities could work to ensure that the students on the margins or those who demonstrate mental health issues, get the support they need by providing them multiple opportunities to express their feelings, offering peer-to-peer support groups, encouraging students to openly talk about mental health problems, empowering students to overcome shame or stigma, connecting the curriculum to their interests, and offering some online mental health services (such as online counselling, online self-management training, virtual support groups, virtual meditation programs). Also, this study suggests that universities could focus on improving the aspects of mental health well-being, psychological well-being in particular, among international students by offering social skill training webinars, teaching positive thinking via online groups, providing online mindfulness training or resources, online self-management skills training, and offering work-life balance webinars. In terms of mental health promotional activities, universities could run some mental health campaigns, anti-stigma campaigns, and create social media pages. These activities would raise awareness regarding the impact of COVID-19 pandemic on mental health and reduce stigma regarding seeking help or talking about mental health issues, resulting in enhancing well-being for this population.

The current study indicated that coping skills and social support were predictors of international students' mental health and psychological distress level. Hence, universities need to focus on developing practical coping strategies among international students. Designing coping skills training programs or workshops (Olivas & Li, 2006) could help international students learn how to manage their feelings of stress or challenges by applying approach coping strategies such as active coping, positive reframing, planning, acceptance, seeking emotional support, and seeking informational support. Moreover, facilitating peer support groups (Poyrazli & Grahame, 2008; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004) in which international students can enter and exit any time and share their challenges or problems can enhance social support level among international students. Mutual support can provide a safe place for international students to relieve their negative emotions or stress, sharing their experiences, and learning from each other. Besides support groups, providing opportunities

that bring international and domestic students together can be worthwhile (Poyrazli & Grahame, 2008; Rosenthal, Russell, & Thomson, 2008). Multicultural interactions can facilitate international students' adjustment process and increase their social support level. It could reduce acculturative stress and develop a sense of belongingness in Canadian society. University counsellors are encouraged to develop multicultural competence in which they will be able to understand the possible difficulties that international students may struggle with and will build a more effective rapport with their clients.

The findings of this study will be practical for the universities, health professionals, policymakers and other related people to be aware of this population's concerns and expectations to provide more comprehensive ranges of appropriate supportive services and build more focused strategies to fulfil their needs, achieve greater satisfaction among their current international students and attract more students for the future. Moreover, this study's results will be useful for international students' centres, university counselling services, and university health offices. It is highly recommended that international students' campus services work collaboratively to enhance international students' positive mental health. The current study found that approach coping skills and perceived social support were predictors of international students' mental health. Orientation programs, workshops or support groups could be designed to assist these students in amplifying their mental health and decreasing their psychological distress. Preparing well-organized orientation programs (Lin, 2006) for international students can help them familiarize with the university culture and Canadian culture and build networks with other international students from their home country. It is also suggested to empower students to actively cope with their difficulties while studying in a foreign country.

5.4 Limitations

The present study is subject to the same methodological limitations that affect survey-based research, including response bias, respondents' tendency to lean towards answering in congruence with self-stigma or social norms, and overall reliability of responses (Rossi, Wright, & Anderson, 2013). The present study investigated the mental health topic that could be susceptible to some international students. Mental health could be a sensitive topic in some cultures, and potential self-stigma regarding expressing mental health concerns and help-

seeking behaviours, particularly among male students, could be existed. This could increase the potential response bias in this survey. The use of self-report questionnaires in this study also raises concerns regarding the reliability of the data since the survey responses were based on the international students' motivation and willingness to answer the questions. Moreover, since the mental health topic is subjective, there could be dissimilarities between understanding and interpreting the mental health issues among this population. Consequently, the estimates of the international students' mental health and psychological distress, along with their reported coping skills and perceptions of social support, are likely conservative.

Secondly, this study's data collection was carried out during the COVID-19 outbreak when all students and university staff were required to work remotely. The outbreak led to the overuse of the University online platform and students received an overwhelming number of messages every day. Students might not have checked their emails regularly or they may have paid less attention to the recruitment message, which resulted in a low response rate (4%) in this study. However, this sample representative is very similar to the total population of international students at the University of Alberta, which could mitigate the limitation of low response rate.

Thirdly, data were collected during the semester's final weeks, when students have assignments due and final exams. Hence, this time of the year might contribute to an increased anxiety or depression, possibly affecting the results. Accordingly, this study's findings cannot be used to establish definitive claims regarding the mental health status of all international students studying at the University of Alberta. Still, this study's findings contribute to the current body of knowledge regarding the mental health of international students.

5.5 Recommendations for future research

Given the findings above, we make the following recommendations:

1. In this study, only the mental health of international students studying at the University of Alberta was investigated. For further studies, it is recommended to conduct research in other Canadian universities to compare international students' mental health status in different universities at the national level.

2. Longitudinal studies on the mental health status of international students may give broader results since the position of mental health is an ongoing and dynamic process that shifts over time between optimal mental health and poor mental health. More studies to observe and investigate international students' mental health with repeated health measures can give a more holistic picture of mental health status and potential confounding factors.

3. Qualitative studies could be conducted to understand students' lived experiences of mental distress, challenges, and problems while living and studying in a foreign country.

4. Only coping skills and perceived social support were investigated in this study regarding the predictors of mental health among international students. Other predictors may be relevant to this phenomenon. Therefore, more comprehensive studies can be conducted in the future regarding factors associated with the mental health of international students to investigate other potential predictors.

5. This cross-sectional study provides information regarding the current status of international students' mental health. A comparison between international and domestic students may give further insight. Performing a comparison study can add valuable information to the current body of the literature on international student mental health in Canada.

6. This study's response rate was lower than we expected due to the impact of COVID-19 outbreak and the stressful situation near the end of the semester. It is recommended for future studies to conduct this type of research (exploring mental health) at different time points to reduce the impact of psychological (such as stressful timing) and environmental (such as mandatory working from home) variables to receive a higher number of respondents with desired response rate.

The current study explores international students' mental health with respect to Keyes' model in a Canadian context, considering potential confounding factors specific to international students, students' attitudes towards, and use of coping strategies as well as their perceived social support. Although there is definitely more work to be done, the conclusions drawn from the present study contribute to Canadian literature's current body. Ideally, outcomes and themes identified here will contribute to more comprehensive studies in the future that will move us towards building a healthy future for international students in Canadian post-secondary institutes.

Reference

Alharbi, E. S., & Smith, A. P. (2018). Review of the literature on stress and wellbeing of international students in English-speaking countries. *International Education Studies*, *11*(6), 22-44.

American College Health Association, (2013). American College Health Association-National College Health Assessment II: Canadian Reference Group Executive Summary Spring 2013. Hanover, MD: American College Health Association.

American College Health Association, (2016). American College Health Association-National College Health Assessment II: Canadian Reference Group Executive Summary Spring 2016. Hanover, MD: American College Health Association.

American College Health Association, (2019). American College Health Association-National College Health Assessment II: Canadian Reference Group Executive Summary Spring 2019. Hanover, MD: American College Health Association.

Anand, K. B., Karade, S., Sen, S., & Gupta, R. M. (2020). SARS-CoV-2: camazotz's curse. Medical Journal, Armed Forces India, 76(2), 136.

Anandavalli, S. (2019). *Lived Experiences of International Graduate Students of Color and Their Cultural Capital: A Critical Perspective* (Doctoral dissertation, The University of North Carolina at Greensboro).

Andrade, M. S. (2006). International students in English-speaking universities: Adjustment factors. Journal of Research in International Education, 5(2), 131-154.

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand journal of public health*, *25*(6), 494-497.

Aroian, K., Templin, T. N., & Ramaswamy, V. (2010). Adaptation and psychometric evaluation of the Multidimensional Scale of Perceived Social Support for Arab immigrant women. Health care for women international, 31(2), 153-169.

Aubrey, R. (1991). International students on campus: A challenge for counsellors, medical providers, and clinicians. Smith College Studies in Social Work, 62(1), 20–33.

Bang, E. J., Muriuki, A., & Hodges, J. Q. (2008). International Students at a Midwestern University: Gender, Stress, and Perceived Social Support. *International Journal of Diversity in Organisations, Communities & Nations*, *8*(4).

Banks, J. A., McGee C.A. (1989). Multicultural Education, Needham Heights. *Allyn & Bacon*.

Barrett, S. P., Darredeau, C., & Pihl, R. O. (2006). Patterns of simultaneous polysubstance use in drug using university students. *Human Psychopharmacology: Clinical and Experimental*, *21*(4), 255-263.

Benesty, J., Chen, J., Huang, Y., & Cohen, I. (2009). Pearson correlation coefficient. In Noise reduction in speech processing (pp. 1-4). Springer, Berlin, Heidelberg.

Berg-Cross, L. & Pak, V. (2006). Diversity issues. *College mental health practice*, 153-172.

Bernaras Iturrioz, E., Insúa Cerretani, P., & Bully Garay, P. (2018). Prevalence and severity of psychological problems in university students. *British Journal of Guidance & Counselling*, *46*(4), 418-428.

Blanco, C., Okuda, M., Wright, C., Hasin, D. S., Grant, B. F., Liu, S. M., & Olfson, M. (2008). Mental health of college students and their non–college-attending peers: Results from the national epidemiologic study on alcohol and related conditions. *Archives of general psychiatry*, *65*(12), 1429-1437.

Bougie, E., Arim, R. G., Kohen, D. E., & Findlay, L. C. (2016). Validation of the 10-item Kessler psychological distress scale (K10) in the 2012 Aboriginal Peoples Survey. Health Reports, 27(1), 3–10.

Bradley, G. (2000). Responding effectively to the mental health needs of international students. Higher Education, 39(4), 417-433.

Brown, L. (2009). The role of food in the adjustment journey of international students. *The new cultures of food: Marketing opportunities from ethnic, religious and cultural diversity*, 37-56.

Brown, L., Edwards, J., & Hartwell, H. (2010). A taste of the unfamiliar. Understanding the meanings attached to food by international postgraduate students in England. *Appetite*, *54*(1), 202-207.

Byrd, D. R., & McKinney, K. J. (2012). Individual, interpersonal, and institutional level factors associated with the mental health of college students. *Journal of American College Health*, *60*(3), 185-193.

Calder, M. J., Richter, S., Mao, Y., Kovacs Burns, K., Mogale, R. S., & Danko, M. (2016). International Students Attending Canadian Universities: Their Experiences with Housing, Finances, and Other Issues. Canadian Journal of higher education, 46(2), 92-110.

Canadian Association of College & University Student Services and Canadian Mental Health Association. 2013. Post-Secondary Student Mental Health: Guide to a Systematic Approach. Vancouver, BC: Author. Retrieved from: https://healthycampuses.ca/wp-content/uploads/2014/09/The-National-Guide.pdf

Canadian Bureau for International Education (CBIE). (2019). CBIE Infographics. Retrieved from: https://cbie.ca/infographic/

Canadian Mental Health Association. 2018. "Social Support." Retrieved from: https://cmha.ca/documents/social-support.

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry research, 112934.

Carr, S., Colthurst, K., Coyle, M., & Elliott, D. (2013). Attachment dimensions as predictors of mental health and psychosocial well-being in the transition to university. European journal of psychology of education, 28(2), 157-172.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of personality and social psychology*, *56*(2), 267.

Carver, C. S. (1997). You want to measure coping but your protocol'too long: Consider the brief cope. *International journal of behavioral medicine*, *4*(1), 92.

Chatterjee, S., & Hadi, A. S. (2015). Regression analysis by example. John Wiley & Sons.

Chavajay, P. (2013). Perceived social support among international students at a US university. *Psychological reports*, *112*(2), 667-677.

Chavajay, P., & Skowronek, J. (2008). Aspects of Acculturation Stress among International Students Attending a University in the USA. *Psychological Reports*, *103*(3), 827–835.

Chen, L.-H. (2008). Internationalization or International Marketing? Two Frameworks for Understanding International Students' Choice of Canadian Universities. Journal of Marketing for Higher Education, 18(1), 1–33.

Chen, J. A., Liu, L., Zhao, X., & Yeung, A. S. (2015). Chinese International Students: An Emerging Mental Health Crisis. Journal of the American Academy of Child and Adolescent Psychiatry, 54(11), 879-880.

Chow, K., & Healey, M. (2008). Place attachment and place identity: First-year undergraduates making the transition from home to university. Journal of Environmental Psychology, 28(4), 362-372.

Church, A. T. (1982). Sojourner adjustment. *Psychological bulletin*, *91*(3), 540.

Clara, I. P., Cox, B. J., Enns, M. W., Murray, L. T., & Torgrudc, L. J. (2003). Confirmatory factor analysis of the multidimensional scale of perceived social support in clinically distressed and student samples. Journal of personality assessment, 81(3), 265-270.

Cleary, M., Walter, G., & Jackson, D. (2011). "Not always smooth sailing": Mental health issues associated with the transition from high school to college. Issues in Mental Health Nursing, 32, 250-254.

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., ... & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological medicine*, *45*(1), 11-27.

Clough, B. A., Nazareth, S. M., Day, J. J., & Casey, L. M. (2019). A comparison of mental health literacy, attitudes, and help-seeking intentions among domestic and international tertiary students. British Journal of Guidance & Counselling, 47(1), 123-135.

Cohen, S. (2004). Social relationships and health. *American psychologist*, *59*(8), 676.

Cooper, C., Katona, C., & Livingston, G. (2008). Validity and reliability of the brief COPE in carers of people with dementia: the LASER-AD Study. The Journal of nervous and mental disease, 196(11), 838-843.

Coniglio, C., McLean, G., & Meuser, T. (2005). Personal counselling in a Canadian post-secondary context. Retrieved from the Canadian University and College Counselling Association website: https://www.cacuss.ca/content/documents/Link/cucca/Resources/Personal%20Counselling% 20in% 20a% 20Canadian% 20Post-Secondary% 20Context. pdf.

Corrigan, P. (2004). How stigma interferes with mental health care. *American psychologist*, *59*(7), 614.

Corrigan, P. W., & Watson, A. C. (2002). Understanding the impact of stigma on people with mental illness. *World psychiatry*, *1*(1), 16.

Cranford, J. A., Eisenberg, D. & Serras, A. M. (2009). Substance use behaviors, mental health problems, and use of mental health services in a probability sample of college students. Addictive Behaviors, 34(2), 134–145.

Cross, S. E. (1995). Self-construals, coping, and stress in cross-cultural adaptation. *Journal of cross-cultural psychology*, *26*(6), 673-697.

Dao, T. K., Lee, D., & Chang, H. L. (2007). Acculturation level, perceived English fluency, perceived social support level, and depression among Taiwanese international students. *College Student Journal*, *41*(2).

De Araujo, A. A. (2011). Adjustment issues of international students enrolled in American colleges and universities: A review of the literature. *Higher Education Studies*, *1*(1), 2-8.

De Bruin, G. P., & Du Plessis, G. A. (2015). Bifactor analysis of the mental health continuum—Short form (MHC—SF). Psychological Reports, 116(2), 438-446.

Demaray, M. K., & Malecki, C. K. (2002). The relationship between perceived social support and maladjustment for students at risk. Psychology in the Schools, 39(3), 305-316.

Diangelo, R. J. (2006). The production of Whiteness in education: Asian international students in a college classroom. Teachers College Record, 108, 1983–2000.

Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *American journal of orthopsychiatry*, *77*(4), 534-542.

Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research and Review*, *66*(5), 522-541.

Eisenberg, D., Hunt, J., & Speer, N. (2013). Mental health in American colleges and universities: variation across student subgroups and across campuses. *The Journal of nervous and mental disease*, *201*(1), 60-67.

Eisenberg, S. A., Shen, B. J., Schwarz, E. R., & Mallon, S. (2012). Avoidant coping moderates the association between anxiety and patient-rated physical functioning in heart failure patients. *Journal of behavioral medicine*, *35*(3), 253-261.

Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. *Science*, *196*(4286), 129-136.

Erichsen, E. A., & Bolliger, D. U. (2011). Towards understanding international graduate student isolation in traditional and online environments. *Educational Technology Research and Development*, *59*(3), 309-326.

Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. African Journal of Emergency Medicine, 7(3), 93-99.

Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature biotechnology*, *36*(3), 282.

Farrer, L. M., Gulliver, A., Bennett, K., Fassnacht, D. B., & Griffiths, K. M. (2016). Demographic and psychosocial predictors of major depression and generalised anxiety disorder in Australian university students. BMC psychiatry, 16(1), 241.

Fassaert, T., De Wit, M. A. S., Tuinebreijer, W. C., Wouters, H., Verhoeff, A. P., Beekman, A. T. F., & Dekker, J. (2009). Psychometric properties of an interviewer-administered version of the Kessler Psychological Distress scale (K10) among Dutch, Moroccan and Turkish respondents. *International Journal of Methods in Psychiatric Research*, *18*(3), 159-168.

Ferguson, H., & Sherrell, H. (2019). Overseas students in Australian higher education: A quick guide. Canberra: Parliament of Australia. *Parliamentary Library Research Papers Series*.

Field, A. (2009). *Discovering statistics using IBM SPSS statistics (3rd edition). London: Sage Publications.*

Firang, D. (2020). The impact of COVID-19 pandemic on international students in Canada. *International Social Work*, *63*(6), 820-824.5

Fisher, R. J. (1993). Social desirability bias and the validity of indirect questioning. Journal of consumer research, 20(2), 303-315.

Forbes-Mewett, H., & Sawyer, A. M. (2019). International students and mental health. *Journal of International Students, 2016 Vol. 6 (3)*, *6*(3), 661-677.

Franken, K., Lamers, S. M., Ten Klooster, P. M., Bohlmeijer, E. T., & Westerhof, G. J. (2018). Validation of the Mental Health Continuum-Short Form and the dual continua model of well-being and psychopathology in an adult mental health setting. Journal of clinical psychology, 74(12), 2187-2202.

Fritz, M. V., Chin, D., & DeMarinis, V. (2008). Stressors, anxiety, acculturation and adjustment among international and North American students. *International Journal of Intercultural Relations*, *32*(3), 244-259.

Furukawa, T. A., Kessler, R. C., Slade, T., & Andrews, G. (2003). The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being. *Psychological medicine*, *33*(2), 357-362.

Goodman, L. (2017). Mental health on university campuses and the needs of students they seek to serve. Building Healthy Academic Communities Journal, 1(2), 31-44.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). Multivariate data analysis: A global perspective (Vol. 7).

Han, X., Han, X., Luo, Q., Jacobs, S., & Jean-Baptiste, M. (2013). Report of a mental health survey among Chinese international students at Yale University. *Journal of American College Health*, *61*(1), 1-8.

Harrer, M., Adam, S. H., Baumeister, H., Cuijpers, P., Karyotaki, E., Auerbach, R. P., ... & Ebert, D. D. (2019). Internet interventions for mental health in university students: A systematic review and meta-analysis. *International journal of methods in psychiatric research*, *28*(2), e1759.

Heather, O., Julie, V., Jennifer, D., & Gayatri, J. (2017). Measuring positive mental health in Canada: construct validation of the Mental Health Continuum—Short Form. *Health promotion and chronic disease prevention in Canada: research, policy and practice*, *37*(4), 123.

Heck, E., Jaworska, N., DeSomma, E., Dhoopar, A. S., MacMaster, F. P., Dewey, D., & MacQueen, G. (2014). A survey of mental health services at post-secondary institutions in Alberta. *The Canadian Journal of Psychiatry*, *59*(5), 250-258.

Hefner, J., & Eisenberg, D. (2009). Social support and mental health among college students. *American Journal of Orthopsychiatry*, *79*(4), 491-499.

Hides, L., Lubman, D. I., Devlin, H., Cotton, S., Aitken, C., Gibbie, T., & Hellard, M. (2007). Reliability and validity of the Kessler 10 and Patient Health Questionnaire among injecting drug users. Australian & New Zealand Journal of Psychiatry, 41(2), 166–168.

Hill, W. G., & Donatelle, R. J. (2005). The impact of gender role conflict on multidimensional social support in older men. International Journal of Men's Health, 4(3), 267.

Hotta, J., & Ting-Toomey, S. (2013). Intercultural adjustment and friendship dialectics in international students: A qualitative study. International Journal of Intercultural Relations, 37(5), 550-566.

Houshmand, S., Spanierman, L. B., & Tafarodi, R. W. (2014). Excluded and avoided: Racial micro aggressions targeting Asian international students in Canada. Cultural Diversity and Ethnic Minority Psychology, 20(3), 377.

Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of adolescent health*, *46*(1), 3-10.

Husky, M. M., Kovess-Masfety, V., & Swendsen, J. D. (2020). Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Comprehensive Psychiatry*, *102*, 152191.

Hysenbegasi, A., Hass, S. L., & Rowland, C. R. (2005). The impact of depression on the academic productivity of university students. *Journal of mental health policy and economics*, *8*(3), 145.

Hyun, J., Quinn, B., Madon, T., & Lustig, S. (2007). Mental health need, awareness, and use of counseling services among international graduate students. *Journal of American College Health*, *56*(2), 109-118.

Iarovici, D. (2014). *Mental health issues and the university student*. JHU Press.

Iasiello, M., & Van Agteren, J. (2020). Mental health and/or mental illness: A scoping review of the evidence and implications of the dual-continua model of mental health. Evidence Base: A journal of evidence reviews in key policy areas, (1), 1.

IBM, Corp. (2020). IBM SPSS statistics for Windows, Version 27.0. Armonk, NY: IBM Cor.

Irons, C., & Gilbert, P. (2005). Evolved mechanisms in adolescent anxiety and depression symptoms: The role of the attachment and social rank systems. *Journal of adolescence*, *28*(3), 325-341.

Jackson, L. M., Pancer, S. M., Pratt, M. W., & Hunsberger, B. E. (2000). Great Expectations: The Relation Between Expectancies and Adjustment During the Transition to University 1. *Journal of Applied Social Psychology*, *30*(10), 2100-2125.

Juvrud, J., & Rennels, J. L. (2017). "I don't need help": Gender differences in how gender stereotypes predict help-seeking. *Sex Roles*, *76*(1-2), 27-39.

Kanekar, A., Sharma, M., & Atri, A. (2010). Enhancing social support, hardiness, and acculturation to improve mental health among Asian Indian international students. International Quarterly of Community Health Education, 30(1), 55-6

Kecojevic, A., Basch, C. H., Sullivan, M., & Davi, N. K. (2020). The impact of the COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-sectional study. *PloS one*, *15*(9), e0239696.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., ... & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychological medicine*, *32*(6), 959-976.

Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., ... & Lara, C. (2010). Screening for serious mental illness in the general population with the K6 screening scale: results from the WHO World Mental Health (WMH) survey initiative. *International journal of methods in psychiatric research*, *19*(S1), 4-22.

Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of health and social behavior*, 207-222.

Keyes, C. L. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of consulting and clinical psychology, 73(3), 539.*

Keyes, C. L. (2006). The subjective well-being of America's youth: Toward a comprehensive assessment. *Adolescent & Family Health*.

Keyes, C. L., Eisenberg, D., Perry, G. S., Dube, S. R., Kroenke, K., & Dhingra, S. S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. Journal of American College Health, 60(2), 126-133.

Keyes, C. L., & Waterman, M. B. (2003). Dimensions of well-being and mental health in adulthood.

Khawaja, N. G., & Dempsey, J. (2007). Psychological distress in international university students: An Australian study. Journal of Psychologists and Counsellors in Schools, 17(1), 13-27.

Khawaja, N. G., & Stallman, H. M. (2011). Understanding the coping strategies of international students: A qualitative approach. *Journal of Psychologists and Counsellors in Schools*, *21*(2), 203-224.

Kim, S. A. (2011). Predictors of acculturative stress among international music therapy students in the United States. *Music Therapy Perspectives*, *29*(2), 126-132.

Kitzrow, M. A. (2003). The mental health needs of today's college students: Challenges and recommendations. *Journal of Student Affairs Research and Practice*, *41*(1), 167-181.

Kono, K., Eskandarieh, S., Obayashi, Y., Arai, A., & Tamashiro, H. (2015). Mental health and its associated variables among international students at a Japanese university: with special reference to their financial status. *Journal of immigrant and minority health*, *17*(6), 1654-1659.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., ... & Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. JAMA network open, 3(3), e203976-e203976.

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer publishing company.

Lee, E. J., Ditchman, N., Fong, M. W., Piper, L., & Feigon, M. (2014). Mental health service seeking among Korean international students in the United States: A path analysis. *Journal of Community Psychology*, *42*(6), 639-655.

Lee, J. S., Koeske, G. F., & Sales, E. (2004). Social support buffering of acculturative stress: A study of mental health symptoms among Korean international students. *International Journal of Intercultural Relations*, *28*(5), 399-414.

Lee, J. J., & Rice, C. (2007). Welcome to America? International student perceptions of discrimination. Higher education, 53(3), 381-409.

Leung, S. O. (2011). A comparison of psychometric properties and normality in 4-, 5-, 6-, and 11-point Likert scales. *Journal of Social Service Research*, *37*(4), 412-421.

Lian, Z. (2017). *Predictors of Depression/Anxiety, Mental Health Service Utilization, and Help-Seeking for Chinese International Students: Role of Acculturation,*

Microaggressions, Social Support, Coping Self-Efficacy, Stigma, and College Staffs' Cultural Competence and Cultural Humility (Doctoral dissertation, Teachers College, Columbia University).

Liao, K. Y. H., & Wei, M. (2014). Academic stress and positive affect: Asian value and self-worth contingency as moderators among Chinese international students. *Cultural Diversity and Ethnic Minority Psychology*, *20*(1), 107.

Li, J., Wang, Y., & Xiao, F. (2014). East Asian international students and psychological well-being: A systematic review. Journal of International Students, 2014 Vol. 4 (1), 4(4), 301-313.

Liu, J. (2016). Internationalization of higher education: Experiences of intercultural adaptation of international students in Canada. Antistasis, 6(2).

Lin, C. (2006). Culture shock and social support: An investigation of a Chinese student organization on a US campus. Journal of Intercultural Communication Research, 35 (2), 117-137.

Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. New directions for program evaluation, 1986(30), 73-84.

Linden, B., & Stuart, H. (2020). Post-Secondary Stress and Mental Well-Being: A Scoping Review of the Academic Literature. *Canadian Journal of Community Mental Health*, *39*(1), 1-32.

Lu, S. H., Dear, B. F., Johnston, L., Wootton, B. M., & Titov, N. (2014). An internet survey of emotional health, treatment seeking and barriers to accessing mental health treatment among Chinese-speaking international students in Australia. *Counselling Psychology Quarterly*, *27*(1), 96-108.

Mackenzie, C. S., Gekoski, W. L., & Knox, V. J. (2006). Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging and mental health*, *10*(6), 574-582.

Madgett, P. J., & Bélanger, C. (2008). International students: the Canadian experience. *Tertiary Education and Management*, *14*(3), 191-207.

Malla, A., Joober, R., & Garcia, A. (2015). "Mental illness is like any other medical illness": a critical examination of the statement and its impact on patient care and society. *Journal of psychiatry & neuroscience: JPN*, *40*(3), 147.

Manderscheid, R. W., Ryff, C. D., Freeman, E. J., McKnight-Eily, L. R., Dhingra, S., & Strine, T. W. (2010). Peer reviewed: evolving definitions of mental illness and wellness. *Preventing chronic disease*, *7*(1).

McClure, J. W. (2007). International graduates' cross-cultural adjustment: Experiences, coping strategies, and suggested programmatic responses. Teaching in Higher Education, 12(2), 199–217.

Mesidor, J. K., & Sly, K. F. (2016). Factors that contribute to the adjustment of international students. *Journal of International Students*, *6*(1), 262-282.

Minutillo, S., Cleary, M., Hills, A. P., & Visentin, D. (2020). Mental Health Considerations for International Students. *Issues in Mental Health Nursing*, 1-6.

Misra, R., Crist, M., & Burant, C. J. (2003). Relationships Among Life Stress, Social Support, Academic Stressors, and Reactions to Stressors of International Students in the United States. International Journal of Stress Management, 10(2), 137–157.

Monthly summary of international student enrolment data from Australian Government (Australian Government) (2020). Retrieved from: *https://internationaleducation.gov.au/research/International-Student-Data/Documents/MONTHLY%20SUMMARIES/2020/Aug%202020%20MonthlyInfographic.pdf*

Moores, L., & Popadiuk, N. (2011). Positive aspects of international student transitions: A qualitative inquiry. Journal of College Student Development, 52(3), 291-306.

Mori, S. C. (2000). Addressing the Mental Health Concerns of International Students. Journal of Counseling & Development, 78(2), 137–144.

Nahidi, S., Blignault, I., Hayen, A., & Razee, H. (2018). Psychological distress in Iranian international students at an Australian university. Journal of immigrant and minority health, 20(3), 651-657.

Ng, C. G., Siddiq, A. A., Aida, S. A., Zainal, N. Z., & Koh, O. H. (2010). Validation of the Malay version of the Multidimensional Scale of Perceived Social Support (MSPSS-M) among a group of medical students in Faculty of Medicine, University Malaya. Asian Journal of Psychiatry, 3(1), 3-6.

Oakley Browne, M. A., Wells, J. E., Scott, K. M., McGee, M. A., & New Zealand Mental Health Survey Research Team. (2010). The Kessler psychological distress scale in Te Rau Hinengaro: the New Zealand mental health survey. *Australian & New Zealand Journal of Psychiatry*, *44*(4), 314-322.

Oberg, K. (1960). Cultural Shock: Adjustment to New Cultural Environments. Practical Anthropology, 7(4), 177–182.

Ogrodniczuk, J. S., Joyce, A. S., & Piper, W. E. (2003). Changes in perceived social support after group therapy for complicated grief. The Journal of nervous and mental disease, 191(8), 524-530.

Olivas, M., & Li, C. S. (2006). Understanding stressors of international students in higher education: What college counselors and personnel need to know. Journal of Instructional psychology, 33(3).

Open Doors Report on International Education Exchange (Open Doors). (2019). Fast Facts. Retrieved from: https://opendoorsdata.org/fast_facts/fast-facts-2019/

Ornell, F., Halpern, S. C., Kessler, F. H. P., & Narvaez, J. C. D. M. (2020). The impact of the COVID-19 pandemic on the mental health of healthcare professionals. Cadernos de saude publica, 36, e00063520.

Orpana, H., Vachon, J., Dykxhoorn, J., & Jayaraman, G. (2017). Measuring Positive Mental Health in Canada: Validating the Concepts of the Mental Health Continuum – Short Questionnaire. Promot Santé Prév Mal Chron Au Can , 37 (4), 133-41.

Pendse, A., & Inman, A. G. (2017). International student-focused counseling research: A 34-year content analysis. *Counselling Psychology Quarterly*, *30*(1), 20-47.

Peter, T., Roberts, L. W., & Dengate, J. (2011). Flourishing in life: An empirical test of the dual continua model of mental health and mental illness among Canadian university students. *International journal of mental health promotion*, *13*(1), 13-22.

Popadiuk, N., & Arthur, N. (2004). Counseling international students in Canadian schools. *International Journal for the Advancement of Counselling*, *26*(2), 125-145.

Poyrazli, S., Arbona, C., Bullington, R., & Pisecco, S. (2001). Adjustment issues of Turkish college students studying in the United States. *College Student Journal*, *35*(1), 52-52.

Poyrazli, S., & Grahame, K. M. (2008). Barriers to Adjustment: Needs of International Students within a Semi-Urban Campus Community. Journal of Instructional Psychology, 34(1), 28–45.

Poyrazli, S., Kavanaugh, P. R., Baker, A., & Al-Timimi, N. (2004). Social support and demographic correlates of acculturative stress in international students. *Journal of College Counseling*, *7*(1), 73-82.

Ra, Y. A., & Trusty, J. (2015). Coping strategies for managing acculturative stress among Asian international students. *International Journal for the Advancement of Counselling*, *37*(4), 319-329.

Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian journal of psychiatry*, 102066.

Rankin, S. R., & Reason, R. D. (2005). Differing perceptions: How students of color and White students perceive campus climate for underrepresented groups. *Journal of College Student Development*, *46*(1), 43-61.

Renshaw, T. L., & Cohen, A. S. (2014). Life satisfaction as a distinguishing indicator of college student functioning: Further validation of the two-continua model of mental health. Social indicators research, 117(1), 319-334.

Robinson, A. M., Jubenville, T. M., Renny, K., & Cairns, S. L. (2016). Academic and mental health needs of students on a Canadian campus. Canadian Journal of Counselling and Psychotherapy, 50(2).

Rosenthal, D. A., Russell, J., & Thomson, G. (2008). The health and wellbeing of international students at an Australian university. *Higher Education*, *55*(1), 51.

Russell, J., Thomson, G., & Rosenthal, D. (2008). International student use of university health and counselling services. *Higher Education*, *56*(1), 59-75.

Rossi, P. H., Wright, J. D., & Anderson, A. B. (Eds.). (2013). Handbook of survey research. Academic Press.

Ryan, M. E., & Twibell, R. S. (2000). Concerns, values, stress, coping, health and educational outcomes of college students who studied abroad. *International Journal of Intercultural Relations*.

Sahu, P. (2020). Closure of universities due to Coronavirus Disease 2019 (COVID-19): impact on education and mental health of students and academic staff. *Cureus*, *12*(4).

Sapranaviciute, L., Padaiga, Z., & Pauzienė, N. (2013). The stress coping strategies and depressive symptoms in international students. *Procedia-Social and Behavioral Sciences*, *84*, 827-831.

Serras, A., Saules, K. K., Cranford, J. A. & Eisenberg, D. (2010). Self-injury, substance use, and associated risk factors in a multi-campus probability sample of college students. Psychology of Addictive Behaviors, 24(1), 119–128.

Skromanis, S., Cooling, N., Rodgers, B., Purton, T., Fan, F., Bridgman, H., ... & Mond, J. (2018). Health and well-being of international university students, and comparison with

domestic students, in Tasmania, Australia. *International journal of environmental research and public health*, *15*(6), 1147.

Smith, R. A., & Khawaja, N. G. (2011). A review of the acculturation experiences of international students. *International Journal of intercultural relations*, *35*(6), 699-713.

Snell, D. L., Siegert, R. J., Hay-Smith, E. J. C., & Surgenor, L. J. (2011). Factor structure of the Brief COPE in people with mild traumatic brain injury. The Journal of head trauma rehabilitation, 26(6), 468-477.

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the United States: interview survey study. *Journal of medical internet research*, *22*(9), e21279.

Statistics Canada. (2016). International Students in Canadian Universities, *Education Indicators in Canada: Fact Sheet*, 2004-2005 to 2013-2014. Retrieved from https://www150.statcan.gc.ca/n1/en/pub/81-599-x/81-599-x2016011-eng.pdf?st=ZqUmbyi_

Statistics Canada, Post-secondary Student Information System (PSIS) (2019). Canadian post-secondary enrolments and graduates, 2017/2018. Retrieved from https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2020006-eng.htm

Sumer, S. (2009). International students' psychological and sociocultural adaptation in the United States.

Sumer, S., Poyrazli, S., & Grahame, K. (2008). Predictors of depression and anxiety among international students. Journal of Counseling & Development, 86(4), 429-437.

Taylor, S. E., & Stanton, A. L. (2007). Coping resources, coping processes, and mental health. Annu. Rev. Clin. Psychol., 3, 377-401.

Terrazas-Carrillo, E. C., Hong, J. Y., & Pace, T. M. (2014). Adjusting to New Places: International Student Adjustment and Place Attachment. Journal of College Student Development, 55(7), 693–706.

Tung, W. C. (2011). Acculturative stress and help-seeking behaviors among international students. *Home Health Care Management & Practice*, *23*(5), 383-385.

Usher, K., Durkin, J., & Bhullar, N. (2020). The COVID-19 pandemic and mental health impacts. International Journal of Mental Health Nursing, 29(3), 315.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis:Implications for conducting a qualitative descriptive study. Nursing & health sciences,15(3), 398-405.

Van Der Heijde, C. M., Douwes, L., & Vonk, P. (2019). Mental health problems and support needs of PhD students: bottle necks of the phD trajectory. *European Journal of Public Health*, *29*(Supplement_4), ckz186-588.

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. Brain, behavior, and immunity, 89, 531-542.

Wang, X., Hegde, S., Son, C., Keller, B., Smith, A., & Sasangohar, F. (2020). Investigating Mental Health of US College Students During the COVID-19 Pandemic: Cross-Sectional Survey Study. *Journal of medical Internet research*, *22*(9), e22817.

Ward, C. A., Bochner, S., & Furnham, A. (2001). The psychology of culture shock. Psychology Press.

Wei, M., Liang, Y. S., Du, Y., Botello, R., & Li, C. I. (2015). Moderating effects of perceived language discrimination on mental health outcomes among Chinese international students. *Asian American Journal of Psychology*, *6*(3), 213.

Wester, S. R., Christianson, H. F., Vogel, D. L., & Wei, M. (2007). Gender role conflict and psychological distress: The role of social support. *Psychology of Men & Masculinity*, *8*(4), 215.

Westerhof, G. J., & Keyes, C. L. (2009). Mental illness and mental health: The two continua model across the lifespan. *Journal of adult development*, *17*(2), 110-119.

Williams, G. M., Case, R. E., & Roberts, C. (2018). Understanding the Mental Health Issues of International Students on Campus. Educational Research: Theory and Practice, 29(2), 18-28.

Wilton, L., & Constantine, M. G. (2003). Length of residence, cultural adjustment difficulties, and psychological distress symptoms in Asian and Latin American international college students. *Journal of College Counseling*, *6*(2), 177-186.

World Health Organization. (2004). Promoting mental health: Concepts, emerging evidence, practice: Summary report.

World Health Organization. (2003). Gender and Health: Retrieved September 10, 2020, from https://www.who.int/health-topics/gender#tab=tab_1

Wu, H., Garza, E., & Guzman, N. (2015). International Student's Challenge and Adjustment to College. Education Research International, 2015, 1–9.

Xie, X., Xue, Q., Zhou, Y., Zhu, K., Liu, Q., Zhang, J., & Song, R. (2020). Mental health status among children in home confinement during the coronavirus disease 2019 outbreak in Hubei Province, China. JAMA pediatrics, 174(9), 898-900.

Xiong, J., Lipsitz, O., Nasri, F., Lui, L. M., Gill, H., Phan, L., ... & McIntyre, R. S. (2020). Impact of COVID-19 pandemic on mental health in the general population: A systematic review. Journal of affective disorders.

Ye, J. (2006). An examination of acculturative stress, interpersonal social support, and use of online ethnic social groups among Chinese international students. *The Howard Journal of Communications*, *17*(1), 1-20.

Yeh, C. J., & Inose, M. (2003). International students reported English fluency, social support satisfaction, and social connectedness as predictors of acculturative stress. Counselling Psychology Quarterly, 16(1), 15-28.

Ying, Y. W. (2005). Variation in acculturative stressors over time: A study of Taiwanese students in the United States. *International Journal of Intercultural Relations*, *29*(1), 59-71.

Yusoff, M. S. B. (2010). A multicenter study on validity of the ISO-items brief COPE in identifying coping strategies among medical students. IMJ, 177(4).

Zhang, J., & Goodson, P. (2011). Predictors of international students' psychosocial adjustment to life in the United States: A systematic review. International Journal of Intercultural Relations, 35(2), 139–162.

Zhang, Y. (2012). An examination of acculturative, stress perceived social support and depression among Chinese international students. *Child and Family Studies - Theses*. 3.

Zhou, Y., Jindal-Snape, D., Topping, K., & Todman, J. (2008). Theoretical models of culture shock and adaptation in international students in higher education. Studies in higher education, 33(1), 63-75.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment*, *52*(1), 30-41.

Zimet, G.D., Powell, S.S., Farley, G.K., Werkman, S. & Berkoff, K.A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment, 55, 610-17.

Appendix A: Ethics Letter of Approval

Notification of Approval

Date:	April 7, 2020	
Study ID:	Pro00099239	
Principal Investigator:	Delaram Baghoori	
Study Supervisor:	Shu-Ping Chen	
Study Title:	Mental Health of International Students Studying at Canadian Universities	
Approval Expiry Date:	April 6, 2021	
Approved Consent Form:	**Approval Date** 2020-04-07	**Approved Document** Survey Consent Form

Thank you for submitting the above study to the Research Ethics Board 2. Your application, including the following, has been reviewed and approved on behalf of the committee:

- Survey Ad, Version 1, April 4, 2020;
- Survey Questions, Version 3, April 4, 2020;
- Project Proposal, Version 3, April 4, 2020.

Any proposed changes to the study must be submitted to the REB for approval prior to implementation. A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Research Ethics Board does not encompass authorization to access the staff, students, facilities or resources of local institutions for the purposes of the research.

Approval by the Research Ethics Board does not encompass authorization to recruit and/or interact with human participants at this time. Researchers still require operational approval (e.g., Alberta Health Services) and must meet the requirements imposed by the public health emergency (link to Alberta COVID page). Sincerely,

Ubaka Ogbogu, LLB, BL, LLM, SJD
Chair, Research Ethics Board 2

Note: This correspondence includes an electronic signature (validation and approval via an online system).

Appendix B: Survey Advertisement

PARTICIPANTS NEEDED – RESEARCH STUDY

International Students

Mental Health of International Students

Researchers from the Faculty of Rehabilitation Medicine, University of Alberta, are exploring the mental health of international students.

If you are **an international student (undergraduate or graduate)**, we would like to invite you to participate in an online survey to help us understand the mental health status of international students. The survey is anonymous, and no personally identifiable information is captured. Your participation is voluntary, and results will be anonymous and confidential.

When you have completed the survey, you can take part in draws for one $50 gift card and ten $15 gift cards.

You are eligible to participate in this study if you meet the following criteria:

- Register as an international student at the University of Alberta
- You are on a study permit
- Full-time or part-time student

If you are interested in taking part in this study, please find the link below:
https://ualberta.ca1.qualtrics.com/jfe/form/SV_eEyOIW7QkQjlxkV

If you have any questions about this survey, please contact the PI of this project:
Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB.
Email: baghoori@ualberta.ca

Appendix C: Survey Cover Letter

Survey Cover Letter (Information and Consent letter)

Dear UofA undergraduate and graduate international students,

You are invited to participate in a study to help us exploring the mental health status of international students.

Title of Study: Mental Health of International Students Studying at Canadian Universities

Principal Investigator: Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB.

Email: baghoori@ualberta.ca

Why am I being asked to take part in this research study?

You are being asked to participate in this anonymous Internet survey because you are a/an graduate and undergraduate international student in University of Alberta.

What is the reason for doing the study?

The purpose of this study is to explore the mental health status of both graduate and undergraduate of international students. The findings of this study will inform the school services to provide more psychological and social support services for international students.

What will I be asked to do?

You are being asked to participate in an anonymous Internet survey asking questions related to your mental health status, coping skills and social support. The survey will take approximately 5 to 10 minutes. Your participation is voluntary, and results will be anonymous and confidential. You can save your responses and return to the survey at any time. You can stop the survey at any time by closing your browser. Feel free to skip answering any question.

What are the risks and discomforts?

There are no risks associated with the survey. However, because the sensitive nature of some of the questions, you may feel uncomfortable when answering the questions. It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?

You are not expected to get any benefit from being in this research study. However, some people feel beneficial to share their thoughts. The results of this study will be beneficial to a range of stakeholders including education policymakers, university administrators, university student services, student organizations, the student body, and mental health service systems.

Do I have to take part in the study?

Being in this study is your choice. If you decide to be in the study, you can change your mind and stop the survey at any time by closing your browser, and it will in no way affect the student status that you are entitled to. You can skip answering any question that you are not comfortable with. If you submit the survey, the data will be included in the database and cannot be withdrawn. However, if you exit the survey, your data will be deleted from the database and not used in any analysis.

Will I be paid to be in the research?

When you have completed the survey, you will be given instructions on how to enter your name and email into draws for 50 $15 gift cards. The odds of winning the prize are around one in 150, depending on the total number of participants. Please note, under federal law you have to answer a skill-testing question successfully in order to qualify for a chance to win the prize.

Will my information be kept private?

During the study we will be collecting anonymous data about you. The data will be shared with the research team members at University of Alberta for analysis. We will secure the data and access will be restricted to only the research staff. We will do everything we can to make sure that this data is kept private and confidential.

What if I have questions?

If you have any questions about the research now or later, please contact, Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB. Email: baghoori@ualberta.ca.

The plan for this study has been reviewed for its adherence to ethical guidelines by a Research Ethics Board at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

If you are distressed or have other personal issues you would like to discuss, we encourage you to contact campus Counselling & Clinical Services at 780-492-5205

https://uofa.ualberta.ca/current-students/counselling

By submitting the survey, you agree to participate in this survey.

Thank you in advance for your time in helping with this study.

Appendix D: Survey Consent Form

Title of Study: Mental Health of International Students Studying at Canadian Universities

Principal Investigator: Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB.

Email: baghoori@ualberta.ca

Why am I being asked to take part in this research study?

You are being asked to participate in this anonymous Internet survey because you are a graduate or undergraduate international student in the University of Alberta.

What is the reason for doing the study?

The purpose of this study is to explore the mental health status of both graduate and undergraduate international students. The findings of this study will help us understand what psychological and social support services required for international students.

What will I be asked to do?

You are being asked to participate in an anonymous Internet survey asking questions related to your mental health status, coping skills and social support. The survey will take approximately 15 minutes. Your participation is voluntary, and results will be anonymous and confidential. You can save your responses and return to the survey at any time. You can stop the survey at any time by closing your browser. Feel free to skip answering any question**.**

What are the risks and discomforts?

There are no risks associated with the survey. However, because the sensitive nature of some of the questions, you may feel uncomfortable when answering the questions. It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant.

What are the benefits to me?

You are not expected to get any benefit from being in this research study. However, some people feel beneficial to share their thoughts. The results of this study will be beneficial to a range of stakeholders including education policymakers, university administrators, university student services, student organizations, the student body, and mental health service systems.

Do I have to take part in the study?

Being in this study is your choice. Whether you participate in this study will in no way affect the student status that you are entitled to. You can skip answering any question that you are not comfortable with**.** You can change your mind and stop the survey at any time by closing your browser. Your data will be deleted from the database and not used in any analysis if you exit the survey at any time. However, once you submit the survey, the data will be included in the database and cannot be withdrawn.

Will I be paid to be in the research?

When you have completed the survey, you will be given instructions on how to enter your name and email into draws for one $50 gift card and ten $15 gift cards. The odds of winning the prize are around one in 130, depending on the total number of participants.

Will my information be kept private?

During the study we will be collecting anonymous data about you. The data will be shared with the research team members for analysis. We will secure the data and access will be restricted to only the research staff. We will do everything we can to make sure that this data is kept private and confidential.

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If you have any questions about the research now or later, please contact, Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB. Email: baghoori@ualberta.ca.

The plan for this study has been reviewed for its adherence to ethical guidelines by the University of Alberta Ethics Board (REB). For questions regarding participant rights and ethical conduct of research, contact the Research Ethics Office at (780) 492-2615.

If you are distressed or have other personal issues you would like to discuss, we encourage you to contact campus Counselling & Clinical Services at 780-492-5205

https://uofa.ualberta.ca/current-students/counselling

By submitting the survey, you agree to participate in this survey.

Thank you in advance for your time in helping with this study.

Appendix E: The Original Online Survey

Dear UofA undergraduate and graduate international students,

You are invited to participate in a study to help us exploring the mental health status of international students.

Title of Study: Mental Health of International Students Studying at Canadian Universities

Principal Investigator: Delaram Baghoori, MSc candidate in Rehabilitation Science, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB.

Email: baghoori@ualberta.ca

Supervisor: Dr. Shu-Ping Chen, Assistant Professor, Department of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, AB.

Phone number: (780) 492-3905. Email: shuping2@ualberta.ca

The survey will take approximately 15 minutes. Your participation is voluntary, and results will be anonymous and confidential. You can save your responses and return to the survey at any time. We will secure the data and access will be restricted to the research staff. You can stop the survey at any time by closing your browser. Feel free to skip answering any question**.** When you have completed the survey, you will be given instructions on how to enter your name and email into draws for one $50 gift card and ten $15 gift cards. The odds of winning the prize are around one in 130, depending on the total number of participants.

If you are distressed or have other personal issues you would like to discuss, we encourage you to contact campus Counselling & Clinical Services at 780-492-5205

https://uofa.ualberta.ca/current-students/counselling

If you have any questions about this survey, please contact Delaram Baghoori at the above email. If you have any questions regarding your rights as a research participant, you may contact the Health Research Ethics Board at 780-492-2615. This office has no affiliation with the study investigators.

Are you an International student?

- Yes
- No

Are you on a study Permit?

- Yes
- No

If yes, please continue to complete this survey.

By continuing, you agree to participate in this survey.

Thank you in advance for your time in helping us in exploring the mental health of international students.

First, we would like to know a bit about you

1. What is your age as of today? _____

2. How do you identify your gender?

☐ Male ☐ Female ☐ Other ☐ prefer not to say

3. What is your marital status?

☐ Single, never married ☐ Married ☐ Other

4. What is your country of origin/nationality? _____

5. How long have you been in Canada for your study?

☐ 6 months or less ☐ 6-12 months ☐ 1-2 years

☐ 2-3 years ☐ 3-4 years ☐ more than 4 years

6. What is your faculty/program of study?

☐ Arts ☐ Business ☐ Science ☐ Education

☐ Native Study ☐ Medicine and Dentistry ☐ Engineering

☐ Law ☐ Pharmacy & Pharmaceutical Sciences

☐ Nursing ☐ Physical Education and recreation ☐ Rehabilitation Medicine

7. What is your current degree level and year are you at the University of Alberta?

Undergraduate Program: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th or more

Master's Program: ☐ 1st ☐ 2nd ☐ 3th or more

Ph.D. Program: ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th ☐ 5th ☐ 6th or more

8. Have you been diagnosed or treated by a professional for any mental disorders within the last 12 months?

☐ Yes ☐ No

Second, we would like to ask a bit about your mental health status

9. Select the frequency that best represents your experiences and feelings during the past month.

During the past month, how often did you feel . . .	NEVER	ONCE OR TWICE	ABOUT ONCE A WEEK	2 OR 3 TIMES A WEEK	ALMOST EVERY DAY	EVERY DAY
1. happy						
2. interested in life						
3. satisfied with life						
4. that you had something important to contribute to society						
5. that you belonged to a community (like a social group, school, neighborhood, etc.)						

6. that our society is a good place, or is becoming a better place, for all people						
7. that people are basically good						
8. that the way our society works made sense to you						
9. that you liked most parts of your personality						
10. good at managing the responsibilities of your daily life						
11. that you had warm and trusting relationships with others						
12. that you had experiences that challenged you to grow and become a better person						
13. confident to think or express your own ideas and opinions						
14. that your life has a sense of direction or meaning to it						

10. The following questions ask about how you have been feeling during the past 30 days. For each question, please select one that best describes how often you had this feeling.

Please tick the answer that that best represents how you have been.	All of the time	Most of the time	Some of the time	A little of the time	None of the time
1. How often did you feel tired out for no good reason?					
2. In the past 4 weeks, about how often did you feel nervous?					

3. In the past 4 weeks, about how often did you feel so nervous that nothing could calm you down?					
4. In the past 4 weeks, about how often did you feel hopeless?					
5. In the past 4 weeks, about how often did you feel restless or fidgety?					
6. In the past 4 weeks, about how often did you feel so restless you could not sit still?					
7. In the past 4 weeks, about how often did you feel depressed?					
8. In the past 4 weeks, about how often did you feel that everything was an effort?					
9. In the past 4 weeks, about how often did you feel so sad that nothing could cheer you up?					
10. In the past 4 weeks, about how often did you feel worthless?					

Third, we would like to ask a bit about how you respond to some situations

11. Place a checkmark in the box that best represents the frequency of your use of each coping strategy in a stressful or challenging situation:

	I haven't been doing this at all	I've been doing this a little bit	I've been doing a medium amount	I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.	□	□	□	□
2. I've been concentrating my efforts on doing something about the situation I'm in	□	□	□	□
3. I've been saying to myself "this isn't real".	□	□	□	□
4. I've been using alcohol or other drugs to myself feel better.	□	□	□	□
5. I've been getting emotional support from others.	□	□	□	□
6. I've been giving up trying to deal with it.	□	□	□	□
7. I've been taking action to try to make the situation better.	□	□	□	□
8. I've been refusing to believe that it has happened.	□	□	□	□
9. I've been saying things to let my unpleasant feeling escapes.	□	□	□	□
10. I've been getting help and advice from other people.	□	□	□	□
11. I've been using alcohol or other drugs to help me get through it	□	□	□	□
12. I've been trying to see it in a different light, to make it seem	□	□	□	□

more positive.

13. I've been criticizing myself.	□	□	□	□
14. I've been trying to come up with a strategy about what to do.	□	□	□	□
15. I've been getting comfort and understanding from someone.	□	□	□	□
16. I've been giving up the attempt. to cope.	□	□	□	□
17. I've been looking for something good in what is happening.	□	□	□	□
18. I've been making jokes about it.	□	□	□	□
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	□	□	□	□
20. I've been accepting the reality of the fact that it has happened.	□	□	□	□
21. I've been expressing my negative feelings.	□	□	□	□
22. I've been trying to find comfort in my religion or spiritual beliefs	□	□	□	□
23. I've been trying to get advice or help from other people about what to do.	□	□	□	□
24. I've been learning to live with it.	□	□	□	□
25. I've been thinking hard about what steps to take.	□	□	□	□
26. I've been blaming myself for	□	□	□	□

things that happened.

27. I've been praying or meditating. □ □ □ □

28. I've been making fun of the situation. □ □ □ □

Fourth, we would like to ask a bit about your social support

12. We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you Very Strongly Disagree
Circle the "2" if you Strongly Disagree
Circle the "3" if you Mildly Disagree
Circle the "4" if you are Neutral
Circle the "5" if you Mildly Agree
Circle the "6" if you Strongly Agree
Circle the "7" if you Very Strongly Agree

	Very Strongly Disagree	Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree	Very Strongly Agree
1. There is a special person who is around when I am in need	1	2	3	4	5	6	7
2. There is a special person with whom I can share joys and sorrows.	1	2	3	4	5	6	7
3. My family really tries to help me.	1	2	3	4	5	6	7
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7

6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends where things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7

Finally, we would like to ask a bit about the impact of COVID_19 on you

The continued spread of COVID-19 around the world and Canada will have various impacts on every single individual physically or mentally. We are also aware of your concerns regarding your academic program, your health, and your family's condition back in your home country. Therefore, please helps us to understand more about the impact of the COVID-19 pandemic outbreak on your mental health and how you manage it by answering the following questions. There is no right or wrong answer to these questions.

Please answer the following questions according to the COVID-19 pandemic outbreak:

13. What is your overall experience regarding this pandemic situation?

14. If applicable, please describe any changes in your emotional status since the COVID-19 outbreak?

15. If applicable, please describe any strategies you use to cope with the COVID-19 outbreak?

THANK YOU!!!

Thank you for participating in this research project.

If you want to participate in the draw for a chance to win one $50 gift card and ten $15 gift cards,

please enter your name and email address here. If not, please leave the space blank and click the next button.