THE INFLUENCE OF COHERENCE, CONNECTEDNESS, AND GENDER ON

INTERNATIONAL STUDENTS' COPING STRATEGIES

A Dissertation

by

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ABSTRACT

International students studying in the United States (U.S.) are at considerable risk for various

psychological problems due to a substantial amount of adjustment stress. Coping strategies play

an active role in maintaining and improving international students' psychological wellbeing;

however, little attention has been given to psychological factors such as sense of coherence and

sense of connectedness, and their influences on international students' ability to cope and adjust.

The 2011 Survey of Distress, Suicidality, and Student Coping, which was conducted by the

National Research Consortium of Counseling Centers, explored the relationship between

international students' sense of coherence and connectedness and their association with three

dimensions of coping strategies: task-oriented, emotion-oriented, and avoidance-oriented within

a structural equation modeling framework. The participants were 2,592 international students

(52.4% men, 47.5% women; 77.6% graduate students, 22.4% undergraduates) whose ages

ranged 18–95 years (M = 26.78 years, SD = 6.06 years). Primary analyses were conducted to

establish the underlying measurement model of coherence, connectedness, task-oriented,

emotion-oriented, and avoidance-oriented coping strategies. The hypothesized model had

acceptable fit: $\chi^2(289)$ = 692.189, RMSEA = 0.035, CFI/TLI = 0.918/0.904, WRMR = 1.953.

Gender moderated the paths between sense of coherence and emotion-oriented strategies, and

sense of connectedness and emotion-oriented strategies. Among female international students,

sense of coherence was positively related with usage of emotion-oriented strategies. Sense of

coherence and sense of connectedness were both negatively related with usage of avoidance-

oriented strategies for both genders. The results have implications for future research, higher

education, and mental health prevention and intervention.

CONTRIBUTORS AND FUNDING SOURCES

DEDICATION

To Grandpa, who took me to school every day until the day he passed away. To Dad, who gave me ultimate access to his "personal library" when I could barely read. To Mom, who has never spent a second in school, but has been my role model every second of my life.

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CHAPTER 1.

INTRODUCTION AND LITERATURE REVIEW

International students in the United States (U.S.) are susceptible to psychological concerns due to exposures to a wide arrange of adjustment stress (e.g., Alazzi & Chiodo, 2006; Constantin et al., 2005; Furukawa, 1997; Lee, Koeske, & Sales, 2004; Liu, 2009; Mori, 2000; Nilsson, Butler, Shouse, & Joshi, 2008; Wei et al., 2007). Different dimensions of coping strategies play significant roles regarding buffering the impacts of adjustment stress, preventing psychological concerns, and maintaining the emotional wellbeing of international students (Chen, 1999; Furukawa, 1997; Lazarus & Folkman, 1984; Ra & Trusty, 2015; Tung, 2011; Yang & Clum, 1994). However, little attention has been given to international students' wellbeing and how psychological factors such as sense of coherence and sense of connectedness could influence international students' coping abilities and adjustment (Grayson, 2008; He, 2012). The goal of this dissertation is to examine the relationships between sense of coherence, sense of connectedness, gender, and three dimensions of coping strategies among international students. The results have implications for future research, higher education, and mental health prevention and intervention regarding international students.

Study Rationale

Since the mid-20th century, the United States has been a major attraction for international college students[1], with over a million (1,043,839) attending U.S. universities and colleges in 2015–16, a 7% increase from 2014–15 (Institute of International Education (IIE), 2016).

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[1]International students are defined as nonimmigrants on a temporary F-1 or J-1 visa at the post-secondary level. They are not U.S. residents, and their stays in the U.S. are solely purported to pursue higher education (IIE, 2016). Other than cases where studies specify home countries for the analyses' subjects, the term "international students" will be used generally to describe samples where the research treated the group homogeneously.

Consequently, the U.S. higher education system has experienced remarkably increased cultural diversity (IIE, 2016). International students prefer the U.S. higher education system for many reasons (Seeber, Cattaneo, Huisman, & Paleari, 2016). Most importantly, U.S. culture has traditionally boasted flexibility, diversity, and inclusivity to others around the world. Many parents and students perceive the U.S. system as the summit in a mountain of intellectual knowledge, cutting-edge technology, and advanced training (Mazzarol & Soutar, 2002). Moreover, because of economic globalization, it is widely believed students who obtain degrees from the U.S. tend to transition into the labor market more smoothly due to networking and relationships that extend across borders. Employers are inclined to hire individuals who have directly gained knowledge and skills at the most prestigious and innovative academic or industrial institutions in the U.S. (Han, Han, Luo, Jacobs, & Jean-Baptiste, 2015; Hu, Garza, & Guzman, 2015; Sandhu, 1994).

It is also economically, socially, and culturally advantageous for U.S. universities to embrace international students (Peri, Giovanni, Basso, & McElmurry, 2016; Sandhu & Asrabadi, 1994). First, international students have contributed considerable financial revenue (National Association of Foreign Student Advisers, 2017). They contributed roughly $36 billion to the U.S. economy in the 2015–16 school year (IIE, 2016). International students also bring academic prestige and cultural exchange (Altbach & Knight, 2007; Celleja, 2000; Odin & Mancias, 2004). These students are often considered very intelligent in their home country and have already excelled academically prior to coming to the U.S. (Arthur, 2016; Mori, 2000). They may also positively influence classrooms, campuses, and communities with intellectual vitality and multiple cultural perspectives (Bevis, 2002; Wu, Garza, & Guzman, 2015). This kind of intercultural interaction could enhance American students' intellectual competence by

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stimulating them to broaden cultural understanding and construct a more diverse worldview, hence making them better prepared for the global market (Zhao, Kuh, & Carini, 2005; Zhou & Scratchley, 2005).

Although many studies have explored college student mental health (e.g., Edwards, Hershberger, Russell, & Market, 2001; Misra, McKean, West, & Russo, 2000; Reifman & Dunkel-Schetter, 1990; Zaleski, Levey-Thors, & Schiaffino, 1999) and mental health of U.S.-born students of color (Barr & Neville, 2014; Iacovino, 2016; Samura, 2016; Yeh & Wang, 2000), few studies have examined international college students' psychological adjustments to the U.S. Because of the continual globalization and internationalization of the higher education system (Seeber, Cattaneo, Huisman, &Paleari, 2016), some cross-cultural studies integrated international students into their studies (Ward, Bochner, &Furham, 2001). Additionally, perceptions of stress and coping strategies might differ across cultures and cause international students to react differently to stress (Misra & Castillo, 2004). However, previous studies did not address factors that could have affected international students' utilizations of coping strategies. Empirical research looking into the adjustment process, acculturation stress, and coping skills of international students have mostly been focused on using demographic information to anticipate effects of external factors on variance acculturation stress (Poyrazli, Arbona, Bullington, & Pisecco, 2001). There is a dearth of research investigating the intrapersonal and interpersonal aspects that (e.g. coherence and connectedness) affect psychosocial adjustment among international students (Lee & Bradly, 2001). More studies need to be done focusing on the psychological adjustment of international students. Specifically in this area, research could help American universities 'to be better prepared for international students.

Although both the U.S. higher education system and international students benefit similarly in this learning environment, many international students may experience hardships when adjusting to the U.S. and university life (Pedersen, 2002; Wu, Garza, & Guzman, 2015; Yoon & Portman, 2004). International students share common problems with U.S. college students such as arduous educational demands. In addition, international students face special obstacles because of cultural differences, limited language proficiency, and perceived discrimination in an unfamiliar environment (Chataway & Berry, 1989; De Araujo, 2011; Gallagher, 2013; Misra & Castllo, 2004; Ying, 2007). According to previous studies, the adjustment process for international students is marked by complexity that occurs on sociocultural, emotional, and academic levels (Chickering, 1969; Gebhard, 2012; Gerdes & Mallinckrodt, 1994; Ingman, 2003; Lin & Yi, 1997; Purnell, 2000; Swagler & Ellis, 2003; Toyokawa & Toyokawa, 2002; Tseng & Newton, 2002). Some common adjustment stressors experienced by international students include financial aid restrictions, language barriers, cultural shock, homesickness, prejudice and discrimination, immigration requirements, and difficulties in establishing meaningful social relationships (Constantin, Kindaichi, Okazaki, Gainor, & Baden, 2005; Cross, 1995; Hendrickson, Rosen, & Aune, 2011; Hotta & Ting-Toomey, 2013; Misra & Castillo, 2004; Yoon & Portman, 2004).

The constant need to cope with a substantial amount of adjustment stress negatively impacts the wellbeing of international students and their academic performance (Gómez, Urzúa, & Glass, 2014; Hyun, Quinn, Madon, & Lustig, 2007). International students are at greater risk for various psychological problems such as loneliness, homesickness, depression, and anxiety (Alazzi & Chiodo, 2006; Constantin et al., 2005; Furukawa, 1997; Lee, Koeske, & Sales, 2004; Liu, 2009; Mori, 2000; Nilsson, Butler, Shouse, & Joshi, 2008; Wei et al., 2007). In addition,

some international students experience behavioral problems such as substance abuse (Holguin, 2011; Kanaparthi, 2009; Sa, Seo, Nelson, & Lohrmann, 2013). For instance, in a study of 648 international students from 74 countries, Hahn (2011) found that 22.6% of the participants were classified as clinically depressed. The depression rate for international students was higher than the depression rate for domestic students (13.8% among undergraduates and 11.3% among graduates) (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Gallagher, Zhang, & Taylor, 2000).

Engaging in everyday activities that were easy when in one's home country can become emotionally draining and trigger a storm of distress, including confusion, frustration, anger, loneliness, and depression (Adler, 1975; Storti, 2001). For example, in a study of 198 international and 241 domestic students from two campuses at the same university, Poyrazli and Lopez (2007) found higher levels of homesickness [$F(1, 335) = 57.59$, p < .001] among international students compared to domestic college students. The reasons included fewer opportunities to speak their native languages and higher levels of perceived discrimination.

Previous studies of international students in the U.S. have controlled for a variety of background characteristics such as length of stay in the U.S. (Traci, 2004; Wilton & Constantine, 2003; Ye, 2006). Additional characteristics have also included English language proficiency as it relates to international students' coping and adjustment (Dao, Lee, & Chang, 2007; Mittal & Wieling, 2006; Yeh & Inose, 2003). However, little attention has been given to psychological factors such as sense of coherence (Grayson, 2008) and sense of connectedness (Drum, Brownson, Hess, Denmark, & Talley, 2016). Sense of coherence is an individual's degree of confidence that current stresses are comprehensible, manageable, and that meaningful challenges are worth overcoming (Antonovsky, 1987). It is a facilitative resilience factor mainly developed before one is 30 years old (Chu, Khan, Jahn, & Kranmer, 2016), which inspires individuals to

focus on resources when coping with stress (Eriksson & Lindstrom, 2005; Løvlien, Mundal, &

Hall-Lord, 2017).

A few studies have examined the influence of sense of coherence on the adjustment of

international students in the U.S. However, sense of coherence is found to have a negative

correlation with acculturative stress among Chinese nursing students in Australia (He, 2012).

Another study, conducted at four Canadian universities, concluded that sense of coherence, when

compared to institutional experiences (e.g., professor performance, classroom involvement), is a

better predictor of first year academic achievement among domestic and international students.

Additionally, sense of coherence, especially the sense of control over the environment, would be

significantly higher among domestic students than international students (Grayson, 2008).

Having a sense of connectedness refers to an individual's perceived level of meaningful

connections to other individuals, groups, and institutions (Drum et al., 2016). Campus

connectedness involves an individual's feelings of belonging within a university environment

(Lee & Davis, 2000). Although there are few studies that examine the sense of connectedness or

belonging of international students, many have been conducted with minority students who were

born in the U.S. For instance, Zahn and Castillo (2010) conducted a study among 82 low-land

Laotian American college students. Campus connectedness was found to have a mediating effect

on the relationship between ethnic-identity cognitive clarity (EI-clarity) and college persistence

attitudes. EI-clarity is the main factor of ethnic identity that captures an individual's sense of

belonging, self-understanding, and clarity (Lee & Yoo, 2004). Additionally, Zahn and Castillo

(2010) confirmed the findings of Lee and Davis: That significant mean group differences of

campus connectedness exist among students of diverse cultural orientations (Lee & Davis, 2000).

In the face of demanding tasks to address adjustment concerns and the consequential psychological problems, it is suggested that when appropriately performed, coping strategies play an active role in maintaining and improving the psychological wellbeing of international students (Chen, 1999; Lazarus & Folkman, 1984; Tung, 2011; Yang & Clum, 1994). A coping strategy is defined as an approach intended to increase tolerance to or alleviate physical, emotional, or financial stress (Folkman & Lazarus, 1980). Coping strategies include three components: (a) task-orientation, (b) emotion-orientation, and (c) avoidance-orientation (Endler & Parker, 1990). Researchers have examined the use of different coping strategies among the general population (e.g., Connor-Smith & Compas, 2002; Jose & Huntsinger, 2005) and college students (e.g., Al-Gamal, Alzayyat, & Ahmad, 2016; Gustems-Carnicer & Calderón, 2016; Jahan et al., 2016; Luyckx, Klimstra, Duriez, Schwartz, & Vanhalst, 2012). However, little attention has been given to patterns, effectiveness, and reasons for the choices of coping strategies made by international students (Furukawa, 1997; Ra & Trusty, 2015). One researcher discovered that, compared to domestic students, international students are more inclined to use avoidance-oriented coping strategies (Chai, 2009). However, another study argued that they prefer problem-oriented coping strategies (Amponsah, 2010). Additionally, a few of these studies explored the predictors of international students' choices of coping strategies such as race and ethnicity (Ra, 2014), acculturation level (Hahn, 2011), and depressive symptoms (Sapranaviciute, 2013). However, no effort has been contributed to studying the relationships among international students associated with sense of coherence, sense of connectedness, and coping strategies.

Purpose of the Study

The current study expands upon the extant literature on international students' coping strategies. The study will include the relationship between sense of coherence, sense of

connectedness, gender, and coping strategies among international students. The three objectives of this study are: (a) to identify the relationship between sense of coherence and coping strategies of international students, (b) to explore the relationship between sense of connectedness and coping strategies, and (c) to examine the relationship between gender and coping strategies. It is hypothesized that there will be a positive relationship between international students' sense of coherence and task-oriented and emotion-oriented coping strategies. In addition, there will be a higher level of sense of coherence associated with higher usages of these two types of coping strategies. Similarly, it is expected that a positive relationship between international students' sense of connectedness and task-oriented and emotion-oriented coping strategies exists. Additionally, those possessing higher levels of sense of connectedness are expected to utilize less of these types of coping strategies. A negative relationship between sense of coherence and avoidance-oriented coping strategies is also anticipated, with those experiencing higher levels of sense of coherence reporting less usage of avoidance-oriented coping strategies. Similarly, a negative relationship between sense of connectedness and avoidance-oriented coping strategies is expected, with higher levels of sense of connectedness indicating lower levels of avoidance-oriented coping strategy usage. Finally, it is hypothesized that gender will moderate the relationship between sense of coherence, sense of connectedness, and coping strategies among international students.

International Students' Adjustment Concerns

Understanding international students' adjustment can facilitate our understanding of their coping strategies (Berry, 2006; De Araujo, 2011; Furnham, 2004; Furnham & Bochner, 1986; Presbitero, 2016; Todman, 2008). Scholars note that there are some common critical types of

adjustments that international students experience: sociocultural, emotional, and academic (Cheng, 1999; Han, 1996; Lin & Yi, 1997; Tseng & Newton, 2002).

According to Ward and Kennedy (1993), sociocultural adjustment is the process of acquiring appropriate skills in the host culture to master everyday life in the new cultural environment. When traveling to the U.S., international students may be viewed as a minority group for the first time in their experience (Schmitt et al., 2003). Sociocultural adjustment concerns such as marginalization, racism, and discrimination may unexpectedly occur (Charles-Toussaint & Crownson, 2010; Frey & Roysircar, 2006; Hanassab, 2006; Poyrazli & Lopez, 2007; Wei, Ku, Russell, Mallinctrodt, & Liao, 2008). A 240-participant study was conducted in Demark with 129 international students and 111 domestic students. It was concluded that international students have a significantly lower level of social support, which negatively predicts successful social adjustment (Ozer, 2015), and could possibly lead to a lower sense of connectedness.

Additionally, international students are often victims of negative stereotypes, classroom isolation, social exclusion, and overt aggression from U.S. citizens (Bonazzo & Wong, 2007; Lee & Rice, 2007). The degree of encountered prejudice and discrimination may vary among subgroups of international students (Hanassab, 2006). Charles-Toussaint and Crownson (2010) studied 188 domestic college students. This revealed three predictors of prejudicial attitudes toward international students: (a) domestic students' social domination orientation (Duckitt, 2001), (b) symbolic threat perception, and (c) realistic threat perceptions on both a cultural level and a competitive level. It is unclear how to determine the levels of these factors. Consequently, perceptions are difficult to measure when attempting to better understand forms of prejudice encountered by international students.

Emotional adjustment is defined as the process of learning to deal with collective social stress, anxiety, depression, sense of inadequacy, and self-esteem. Emotional adjustment could be affected by factors such as an individual's length of stay, language fluency, and engagement in the host culture (Reynolds & Kamphaus, 2004). Managing stress and the resources used to achieve personal goals is likely to affect the individual's confidence (Cozart & Rojewski, 2015; Lent, 2005). Consequently, emotional adjustment could potentially influence international students' sense of coherence. Many studies have suggested that international students experience special emotional challenges while they are adjusting to the host culture (McKinlay, Pattison, & Gross, 1996; Pedersen, 2002; Tan & Weidman, 2013; Yan & Berliner, 2009; Zhang & Goodson, 2011). As previously discussed, they have more psychological concerns; however, few empirical studies that focused on the collective experience of emotional adjustment yielded findings contrary to speculations (Cozart & Rojewski, 2015; Lopez & Bui, 2014). For example, based on 91 international student participants, social support, contact frequency, quality with the host culture, and English language confidence all negatively predicted international students' sense of self-esteem (Lopez & Bui, 2014). Additionally, in 2015, Cozart and Rojewski (Chinese students, $n = 24$; U.S. students, $n = 46$) found no significant difference between emotional adjustment levels of domestic students and Chinese international graduate students.

Academic adjustment refers to the process of dealing with a person's scholarly purpose, motivation, actions to fulfill academic demands, and satisfaction with the school environment (Gerdes & Mallinckrodt, 1994; Ramsay, Barker, & Jones, 1999). Academic adjustment is another prevalent concern for many international students that has frequently been studied (e.g., Hegarty, 2014; Kovtun, 2011; McLachlan & Justice, 2009; Menzies, Baron, & Zutshi, 2015; Woodrow, 2006; Yeh & Inose, 2003). For example, international students are less aware of what

constitutes cheating than domestic students (Bertram Galant, Binkin, & Donohue, 2015). For example, after 2009, incidents of academic integrity violations at an American, West Coast, public university increased approximately six times within four years (Fass-Holmes, 2017).

Furthermore, findings suggest that international students' non-academic activities, such as faculty support (McLachlan & Justice, 2009) and social support (Andrade, 2005; Cura & Işık, 2016; Gomez, Urzua, & Glass, 2014), often positively predict their academic success (Mamiseishvili, 2012; Tolman, 2017). However, international students tend to be preoccupied with academic activities (Andrade, 2005). It is speculated that sense of connectedness influences international students' coping strategy choices, thus positively predicting their academic adjustment outcomes.

Sense of Coherence

Antonovsky's salutogenic model (1979, 1987) supports the view that physical health and psychological wellbeing are contingent upon sense of coherence. Antonovsky defined sense of coherence as a construct consisting of conflict resolution and stress management (Lindström & Eriksson, 2009; Morrison & Clift, 2006; Nilsson, Holmgren, & Westman, 2000). This interpretation presents a pervasive and global orientation that views the external environment as comprehensible, manageable, and meaningful. The first element, comprehensibility, indicates that an individual believes that challenging life events are not threats. Instead, these events are viewed as structured and they occur for explicable reasons. The second element, manageability, means a person is confident these hardships could be addressed with the current resources at their disposal. The third element, meaningfulness, implies that even though stressful events may occur that are out of their personal control, the events are worthy of engagement and investment. Each successful incident of stress management reinforces sense of coherence and provides a new

resource for a future challenge (Antonovsky, 1987). Consequently, developing a sense of coherence is a process of continually internalizing and efficiently utilizing available external resources to cope with current challenges (Feldt et al., 2011; Suominen, Blomberc, Helenius, & Koskenvuo, 1999; Suominen & Vahtera, 2010).

Our knowledge about sense of coherence among international students in the U.S. remains incomplete (Drum et al., 2006; Grayson, 2007, 2008; He, 2012), especially about how it influences coping strategies. First, sense of coherence is a term originally used in health-related studies of disease and has had a pathogenic connotation ever since (Løvlien et al., 2017; Pakarinen et al., 2017). There were approximately 460 studies completed on the relationship between physical health and sense of coherence on the general population of adults (Eriksson & Lindstrom, 2005). Second, most studies on sense of coherence were conducted outside of the U.S. with non-college student populations (e.g., Grayson, 2008). For example, a study systematically reviewed 68 quantitative studies that scrutinized sense of coherence among 84,771 adolescents. It was discovered that about 44% of these studies were conducted in Scandinavian countries and 21% in Israel. The remaining 35% of the studies employed participants from different countries in America, Europe, Africa, and Asia (Rivera, Garcia-Moya, Moreno, & Ramos, 2017). Third, previous studies about sense of coherence often focus on its determining factors. For example, an increased workload was found to predict a lower level of sense of coherence among Israeli college students (Carmel & Bernstein, 1990). Another example is that social support, academic excellence, and satisfaction with the political situation were positively associated with sense of coherence among 3,115 adults in Finland (Volanen, Suominen, Lahelma, Koskenvuo, & Silventoinen, 2006).

Empirical studies have strongly supported that sense of coherence develops before the age of 30 years; then it is stable thereafter (Antonovsky, 1987; Volanen et al., 2006). College students, including international students, tend to belong to this age group. Nonetheless, other studies concluded that sense of coherence levels could be altered by interventions or challenging structured activities throughout adulthood (Feldt et al., 2011; Feldt, Leskinen, Kinnunen, & Ruoppila, 2003; Forsberg, Björkman, Sandman, & Sandlund, 2010; Langeland & Wahl 2009; Langeland et al., 2006; Sarid, Berger, & Segal, 2010; Schnyder, Büchi, Sensky, & Klaghofer, 2000; Skodova & Lajciakova, 2013; Weissbecker et al., 2002; Yamazaki et al., 2011). In general, the process of sense of coherence development is interactive and complex (Lindström & Eriksson, 2010; Super et al., 2016). For example, Antonovsky's (1987) salutogenic model introduced the interactions between sense of coherence, life experiences, and generalized resistance resources. The university environment presents many challenges that could further complicate students' sense of coherence (Chu et al., 2016). Since adjustment concerns were already elucidated, sense of coherence among international students in the U.S. should be examined.

Previous studies suggest that normal levels of sense of coherence could be determined arbitrarily (Eriksson & Lindstrom, 2005; Fok, Chair, & Lopez, 2005). However, levels of sense of coherence seem to be closely related to many other constructs such as acculturative stress, cultural orientation, perceived racial discrimination, and collective self-esteem (He, 2012; Lam, 2007; Ying, Lee, & Tsai, 2000). For example, Ying et.al (2000) examined 231 immigrant Chinese-American college students and 122 American-born Chinese-American college students. They found that sense of coherence is strongly predicted by cultural orientation in three domains: language use and proficiency, social affiliation, and cultural pride.

Another study recruited 122 Vietnamese American college students and indicated that sense of coherence was negatively associated with perceived racial discrimination (depression and anxiety). However, it was positively associated with collective self-esteem (Lam, 2007). Additionally, moderate levels of acculturative stress and sense of coherence were reported among 119 Chinese international undergraduate nursing students at an Australian university in Sydney. Additional acculturative stress resulted in a lowered sense of coherence (He, 2012).

Sense of coherence often serves as a mediator or moderator as well. Lam (2007) posited that sense of coherence mediates the relationship between perceived racial discrimination and collective self-esteem regarding psychological distress. However, Koskinen and colleagues (2015) failed to confirm the moderating effect of sense of coherence upon the association between discrimination and psychological wellbeing among international adoptees.

Sense of coherence is also believed to be a substantial contributing factor to coping successfully with ubiquitous stressors because it strengthens an individual's capacity to impose structure on stressors and incorporate resources constructively (Super et al., 2016). Consequently, sense of coherence is often found at the epicenter of public health promotion. Antonovsky (1987, p. 138) noted the benefits of sense of coherence by selecting appropriate coping strategies: "What the person with a strong sense of coherence does is to select the particular coping strategy that seems most appropriate to deal with the stressors being confronted." He also stated that the consistency of life's experiences determines the predictability of an individual's sense of coherence, as well as their coping capacity, knowledge, and skills.

It is suggested that a person with a higher sense of coherence is more likely to employ effective coping strategies to improve their quality of life (QoL). An expanded repertoire of

coping strategies will, in turn, boost their sense of coherence (Fok et al., 2005). However, most studies have examined sense of coherence and coping strategies separately (Andruszkiewicz, 2017). Fok et al. (2005) found that, among 88 patients with critical illnesses, their sense of coherence was significantly correlated with their QoL (r = 0.28–0.69) and with their coping ability (r = 0.58). Moreover, as reflected by the data of 138 Israeli adolescents who survived missile attacks, coping strategies and cognitive appraisal mediated the relationship between sense of coherence and stress reactions (Braun, Lewensohn, Sagy, & Roth, 2011). Krok (2016) also found that sense of coherence mediated the association between meaning-oriented religiousness and three coping strategies: emotion-oriented, task-oriented, and avoidance-oriented.

Sense of Connectedness

In this study, sense of connectedness is defined as an individual's feeling that "he or she is meaningfully connected to others and belongs with other individuals, groups, or institutions such as schools" (Drum, 2016, p. 2). Some psychological studies focused on connectedness; however, they never defined the term (Zeldin, 2016). Even studies that explained the construct did not agree on a universal definition. For example, some argued that connectedness is one dimension of spirituality. A person could be connected to God and the universe, to other human beings, to nature, or with one's self (Pesut, 2008; Pesut, Fowler, Taylor, Reimer-Kirkham, & Sawatzky, 2008). Others defined it as the fundamental and universal human need of belonging (Patrick, Knee, Canevello, & Lonsbary, 2017). There are also some narrower concepts of connectedness, such as social connectedness, school connectedness, and campus connectedness. For example, social connectedness is an individual's enduring sense of belonging based on the social interactions they are in contact with and involved in with others (Lee & Robin, 1995, 1998; Van Bel, Smolders, Ijsselsteijn, & de Kort, 2009). School connectedness is defined as a

student's confidence that peers and adults in the school care about their individual needs and academic development (Centers for Disease Control and Prevention, 2009). Campus connectedness specifies a student's belonging with the campus (Lee & Davis, 2000).

Sense of connectedness is multidimensional with social appraisals that are both quantitative and qualitative. The former refers to how an individual evaluates their breadth of social networking and the extent of their social interaction. The latter indicates a person's subjective experience of closeness with people in their social relationships or feelings of belonging to a community (Håkanson & Öhlén, 2016). Second, a myriad of factors may influence the maintenance and development of sense of connectedness, such as positive social networks, satisfying employment, safety, and sense of security (Van Bel, Smolders, Ijsselsteijn, & de Kort, 2009). For example, connectedness among 979 international students in Melbourne, Australia, was found to be influenced by their academic performance, English proficiency, and cultural background (Rosenthal, Russell, & Thomson, 2007). Another study argued that sense of connectedness is effective for subjective wellbeing among palliative care inpatients. This sense of connectedness is influenced by illness, spatiality, atmosphere, activities, and resources in the place of care (Håkanson & Öhlén, 2016). Among Malaysian youths, there is a positive association between perceived respect from adults, community identity development, and sense of connectedness (Zeldin, 2016). Additionally, about 33% of the variance in social connectedness of Chinese international students in the international community could be explained by their English language proficiency and global competency (Meng, Zhu, & Cao, 2017).

Sense of connectedness is postulated to be a significant determinant of sense of security and psychological wellbeing (Maslow, 2011; Pearce, 2015; Yusoff & Othman, 2011).

Investigating sense of connectedness among people from diverse backgrounds helps deepen our understanding of how people relate to others in an unfamiliar cultural environment and how satisfied they are with their social support system (Lee & Robbins, 1995, 1998; Rosenthal, Russell, & Thomson, 2007; Tran & Pham, 2016). For example, scholars found that individuals with low levels of connectedness are more susceptible to low self-esteem, depression, and anxiety. They tend to have difficulty forming meaningful relationships with others, groups, and the community (Lee & Robbins, 1998).

On the other hand, greater social connectedness predicts greater reliance on both task-oriented and emotion-oriented coping strategies (e.g., cognitive restructuring, attempts to directly alter the stressor, etc.), and less reliance on avoidance-oriented strategies (Fraser & Pakenham, 2009). Studies addressing young adults and college students revealed similar findings: female college students tend to experience higher adjustment stress due to a lower sense of connectedness than their male counterparts (Lee, Keough, & Sexton, 2002), and young adults with a lower sense of connectedness may have more self-injurious thoughts and behaviors (Macrynikola, Miranda, & Soffer, 2018). Fortunately, Lehtomäkia, Moateb, and Posti-Ahokasc (2016) postulated that sense of connectedness could be reinforced by collective efforts in higher education to encourage diversity (e.g., disciplinary, cultural, and social) among students, and to integrate global dialogues.

Research on sense of connectedness among international students often examined social connectedness and its relationship with aspects of adjustment concerns, such as acculturative stress, perceived prejudice and discrimination, or language proficiency (Duru & Poyrazli, 2011; Yeh & Inose, 2003). For instance, higher levels of social connectedness and a stronger social support system were both confirmed to predict lower levels of acculturative stress ($p < .001$)

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among 395 international students studying in the U.S. (Yeh & Inose, 2003). Moreover, in a quantitative study, Duru and Poyrazli (2011) examined 229 Turkish international students who were in the U.S. Results revealed that social connectedness was negatively associated with perceived discrimination and adjustment concerns. However, it was positively related to the length of stay in the U.S. and with English language proficiency. Another study collected friendship grids (friends' demographic information and strength of friendships) from 84 international students. Researchers reported a higher sense of connectedness, and consequently, a higher level of satisfaction with life in the U.S. among international students who had more interpersonal interactions with individuals from the host country (Hendrickson et al., 2011). Cultural stress is also believed to be negatively associated with social connectedness (Thomson, Rosenthal, & Russell, 2006).

Scholars argue there is an association between sense of coherence and sense of connectedness (Drum et al., 2016; Sorensen, Klungsoyr, Kleiner, & Klepp, 2011). For example, the higher a person's sense of coherence, the more likely they are to evaluate others in a positive light. Their ability to build a social support system will be more effective and, consequently, their sense of connectedness will increase (Sorensen et al., 2011). However, these two constructs are rarely studied in juxtaposition among college students and even less for international students (Drum et al., 2016). It is hypothesized that they each have similar effects on other psychological wellbeing factors, and they have interaction effects with each other. For example, Drum and colleagues (2016) determined that both sense of coherence and sense of connectedness mitigated psychological distress among U.S. undergraduate and graduate students ($N = 26,742$). In addition, sense of coherence reduced the impact of pre-existing vulnerabilities to trigger college students' suicidal ideation and sense of connectedness decreased the intensity of their suicidal

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thoughts. They suggested that, when both sense of coherence and sense of connectedness are elevated, college students might achieve enhanced protective effects regarding suicidality.

Coping Strategies

Coping strategies refer to approaches used to mitigate or to tolerate physical, emotional, or financial stress (Billings & Moos, 1981; Endler & Parker, 1990b, 1994; Folkman & Lazarus, 1988; McCrae, 1984). Coping strategies are conceptualized to be situation-specific or a stable personality trait: situational coping or dispositional coping (Brands, Köhler, Stapert, Wade, & van Heugten, 2014). They could be categorized into distinct types (Billings & Moos, 1984; Carver, Scheier, & Weintraub, 1989; Endler & Parker, 1994; Folkman & Lazarus, 1980; Pearlin & Schooler, 1978; Snyder, 1999) as well. Initially, coping strategies were theorized as process-oriented models in response to challenging and upsetting life events. Coping strategies received considerable research interest (e.g., Amirkhan, 1990; Feifel & Strack, 1989; Nowack, 1989). For example, Folkman and Lazarus (1980) posited there were two types of coping strategies: behavioral (problem-solving oriented) and cognitive (emotion-focused psychological) approaches. This interpretation conceptualized coping strategies as situation-specific. Consequently, scales stemming from it measure only these types, but not the frequency of coping activities utilized by participants (Epstein & Meier, 1989; Endler & Parker 1990a, 1990b, 1990c, 1993). Therefore, they were psychometrically inadequate and lacked reliability, validity, and generalizability because they were based on incorrect factor analyses (Amirkhan, 1990; Carver, Scheier, & Weintraub, 1989; Cohen, 1987; Endler & Parker, 1990a, 1990b, 1993; Epstein & Meier, 1989; Krohne, 1988; Parker & Endler, 1993; Parker, Endler, & Bagby, 1993; Stone, Greenberg, Kennedy-Moore, & Newman, 1991).

To further explore the factor structures of coping strategies and to improve construct validity, Endler and Parker (1994) conducted a large-scale survey of 559 undergraduates (284 women and 275 men) to gather their levels of engagement in different coping strategies. The results indicated that there were three types of coping strategies: task-oriented, emotion-oriented, and avoidance-oriented. This type of categorization is reconfirmed by subsequent research (Cohan, Jang, & Stein, 2006) and is consistent with dispositional coping theory (Carver, Scheier, & Weintraub, 1989). Task-oriented strategies use behavior to specifically manage or change the environment that has produced stress. Elements of the process include identifying problems; learning new skills; recalling transferrable skills from past successful incidents of problem resolutions; taking corrective actions to solve problems; and altering one's motivation, cognition, and/or behaviors. Emotion-oriented strategies are used by individuals to focus on managing and regulating their internal emotional responses to given stressful situations. Examples of emotional situations include anger, guilt, wishful thinking, attributing faults to others, distancing, suppressing, and trying to relax. Lastly, avoidance-oriented strategies are used by individuals to disengage from stressful life events, such as shying away from others or procrastinating on assignments by engaging in substitute tasks (Endler & Parker, 1994).

Cosway et al. (2000) and Rafnsson et al. (2006) suggested that avoidance strategy could be further divided into two types: social diversion and distraction coping. Social diversion includes engaging in social activities to divert attention from stressors. Examples of distraction coping include fishing and sleeping instead of doing homework. However, these findings require additional empirical evidence.

The construct of coping strategies has several characteristics such as stability (e.g., Regier & Parmelee, 2015) and orthogonality (Eisenbarth, 2012). First, distinct types of coping

strategies are universally believed to be orthogonal constructs where an individual usually prefers one style over another, depending on factors such as personality, demographics, and environment (Darling, McWey, Howard, & Olmstead, 2007; Eisenbarth, 2012). For example, Lazarus and Folkman (1987) indicated that preferences for coping strategies are contingent upon a person's appraisal of the stressor and the available recourses. A person is more likely to utilize task-oriented strategies if they are confident about available coping resources and their ability to manage the situation. On the other hand, emotion-oriented strategies are common among people with a higher sense of helplessness over the situation. Second, despite individual preferences, studies indicate that after reaching adulthood, people tend to demonstrate stable patterns of exploiting coping strategies (Billingsley, Waehler, & Hardin, 1993; Endler et al., 2003; Fondacaro & Moos, 1989; Regier & Parmelee, 2015; Thompson & Gustafson, 1996). Moreover, adults tend to use all three coping styles simultaneously to address a single challenge (Elfström, Ryden, Kreuter, Taft, & Sullivan, 2005; Visser, Aben, Heijenbrok-Kal, Busschbach, & Ribbers, 2014; Westerhuis, Zijlmans, Fischer, van Andel, & Leijten, 2011). Third, a coping strategy's efficacy on psychological wellbeing is not unequivocally positive or negative. A specific coping strategy may have a salutary or detrimental impact on psychological functioning (Clark & Hovanitz, 1989; Endler & Parker, 1990a, 1990b; Somerfield & McCrae, 2000; Suls & Fletcher, 1985). For example, studies identified the overutilization of disengagement coping strategies as a predictor of higher levels of prolonged psychological concerns such as depression, anxiety (Crockett et al., 2007; Görgen, Hiller, & Witthöft, 2014), and loneliness (Thurber and Walton, 2012). Another study discovered that, for psychology undergraduate students in Vietnam, avoidance-oriented coping strategies were negatively correlated with depression (Tran, 2017).

It is important for us to understand international students' preferences for coping strategies and patterns to mitigate psychological concerns (Chun & Poole, 2009; Kase, 2016; Wei et al., 2008; Yan, 2011). This is especially important when considering their demanding tasks of managing and resolving adjustment concerns (Chen, 1999; Mallinckrodt & Leong, 1992; Tung 2011; Wan, Chapman, & Biggs, 1992; Yang & Clum, 1994). It was ascertained that international students (compared to their domestic counterparts) demonstrate a distinct pattern of using coping strategies (Sapranaviciute, Perminas, & Pauziene, 2012). Many previous studies did not use Endler and Parker's theory (1994) or any other existing theories as frameworks to guide the investigations on coping strategies among college students (e.g., Irmak, Aksel, & Thompson, 2016; Luyckx et al., 2012) and international students (e.g., Alsahafi & Shin, 2017; Chai, Krägeloh, Shepherd, & Billington, 2012; Chun & Poole, 2009; McClure, 2007; Park, Zepernick, Lee, & Choi, 2017; Szabo, Ward, & Jose, 2016; Wei et al., 2008; Woo, Jang, & Henfield, 2015; Yan, 2011). For example, Park and his colleagues (2017) collected qualitative information about specific coping behaviors among East Asian international students in the U.S. They arbitrarily divided the construct into two main categories: (a) active coping strategies and resilience factors and (b) avoidant coping and emotional regulation. Consequently, this current study aims to confirm an advocated coping strategies construct (Endler & Parker, 1994) and use that construct to guide our analyses.

Task-oriented strategies. Task-oriented strategies are often considered to be the most efficient and popular type in promoting psychological wellbeing (Amponsah, 2010). For example, research indicates that the frequent use of task-oriented strategies improves a person's self-esteem, self-efficacy, and sense of mastery (Sandler, Wolchik, MacKinnon, Ayers, & Roosa, 1997; Smith, Saklofske, Keefer, & Tremblay, 2016; Zeidner & Endler, 1996). These strategies

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also decrease anxiety, depression, and loneliness (McWilliams, Cox, & Enns, 2003; Parker & Endler, 1992; Wills & Hirky, 1996; Zeidner & Endler, 1996). Studies among the general population validated that task-oriented strategies are associated with a higher perceived QoL (de Ridder & van Heck, 2004; Endler & Parker, 1999; McWilliams, Cox, & Enns, 2003).

These findings may be extended to college and international students (e.g., Hahn, 2011). For example, a study of 233 first-year psychology students at a French university concluded only task-oriented coping strategies were effective in reducing depressive symptoms (Bouteyre, Bernaud, & Maurel, 2007). More specifically, effective time-management strategies (task-oriented) are frequently recommended for international students to enhance their academic performance and to balance their school and social life (Campbell & Svenson, 1992). Other task-oriented strategies, such as breaking down large tasks into smaller ones, could help international students reduce academic anxiety and prevent panic attacks during exam preparation (Brown, 1991). Moreover, peer stories and testimonies of successful cross-cultural adjustments provide templates for assessing the current stance of international students. This approach is also beneficial for designing training programs and planning counseling services. Therefore, interacting with peers to collect this information is another adaptive task-oriented coping strategy (Arthur, 2000; Brammer & Abrego, 1992; Lazarus & Folkman, 1984; Schlossberg, 1992; Winkelman, 1994).

To the contrary, others argued that the efficacy of task-oriented strategies varies according to factors such as personal resiliency (Campbell-Sills, Cohan, & Stein, 2006; Kitano & Lewis, 2005). There are few studies about the negative impact of task-oriented strategies on psychological wellbeing. For example, among college students, research indicated a negative

association between a higher usage of task-oriented coping strategies, appraised stress (Dyson & Renk, 2006), and negative health status (Sasaki & Yamasaki, 2007).

Emotion-oriented strategies. There is much evidence for the mental-health-promoting effects of emotion-oriented strategies, especially when individuals possess a reduced sense of control over the situation (Park, Folkman, & Bostrom, 2001; Zakowski, Hall, Klein, & Baum, 2001). However, emotion-oriented strategies (e.g., gaining insight into and processing emotions), rather than task-oriented strategies, may be more beneficial to some individuals. Emotion-oriented strategies are most appropriate and effective for individuals who lack awareness and comprehension of their emotions or lack emotional competencies (Baker & Berenbaum, 2008).

Emotion-oriented strategies are associated with the reduction of acculturative stress among international students in the U.S. (Ra & Trusty, 2015). The ability to evaluate an existing repertoire of coping resources and strategies, and adapt them to the new culture, is itself an effective emotion-oriented coping strategy for international students regarding mitigating adjustment stresses (Ryan & Teibell, 2000). Some international students can employ nontraditional coping strategies they do not typically resort to in their home countries. Use of these nontraditional strategies is also considered an adaptive emotion-oriented coping strategy (Brinson & Kottler, 1995).

On the other hand, an emotion-oriented coping strategy is also believed to have the potential to yield detrimental results among international students (e.g., Chen, Sullivan, Lu, & Shibusawa, 2003). For example, studies argued that a preference for emotion-oriented coping strategies can positively predict greater instances of depression (e.g., Endler, Corace, Summerfeldt, Johnson, & Rothbart, 2003; Perrot et al., 2008; Somers et al., 2009), greater acculturative stress (Eisenbarth, 2006), perceived stress level (Asberg, Bowers, Renk, &

McKinney, 2008; Blalock & Joiner, 2000; Dwyer & Cummings, 2001; Dyson & Renk, 2006),

and self-reported negative affect (Kariv & Heiman, 2005; Sideridis, 2006). Furukawa (1997)

conducted an empirical study with Japanese international students in the U.S. and found that

students who utilized emotion-oriented coping strategies seemed to not experience positive

outcomes for managing acculturative stress and psychological disturbance. Emotion-oriented

coping strategies may be maladaptive to Asian international students because they tend to be

reserved and reluctant to express emotions. Consequently, they overuse the suppression method

of emotion-oriented coping strategies (Kim, Li, & Ng, 2005). For example, Chinese culture

emphasizes patience and emotional suppression, which may impede Chinese students' social

relationships (Bai, 2016; Chen et al., 2003; Mortenson, 2006).

 Avoidance-oriented strategies. Despite receiving less attention compared to the two

other factors, avoidance-oriented coping demonstrated popularity and benefits among certain

populations. Previous research concluded that international students use more avoidance-oriented

strategies such as denial and behavioral disengagement (Chai, 2009). Browne (2000) indicated

that an avoidance-oriented coping strategy is most prevalent among Asian international students.

Furthermore, based on a sample of 480 business undergraduate students from eight universities

in Malaysia, avoidance-oriented strategies were used most often (Poon, Lee, & Ong, 2017).

Immediately following the occurrence of stressors, avoidance-oriented strategies were found to

temporarily decrease distress and anxiety (Parker & Endler, 1992; Suls & Fletcher, 1985).

Additionally, disengagement coping positively predicts an increase of non-self-determined

motivation (Thompson & Gaudreau, 2008).

 Scholars also argue that avoidance-oriented coping has an undesirable influence on

psychological functioning such as generating higher levels of acculturative stress among

international students (Bektas, Demir, & Boden, 2009; Kim, Alhaddab, Aquino, & Negi, 2016) and reducing their faith (Chai, 2009) and social support (Bektas et al., 2009). Moreover, denial and disengagement from the stressor may lead to exacerbations of psychological concerns and delays in seeking help (Carver & Scheier, 1994). Avoidance-oriented strategies are also negatively associated with decisiveness (Kosic, 2004). These negativities are specifically more salient among Asian international students. This is because disengagement from the community is fundamentally contradictory to their collective cultural heritage (Kim et al., 2016; Kuo, Roysircar, & Newby-Clark, 2006).

Gender differences in coping strategies. Though gender is often used synonymously with sex (Haig, 2004), gender is a social and cultural concept that entails the socially constructed characteristics of men and women, and it is self-identified (World Health Organization, 2017). Gender is another factor that may influence psychological experiences and the selection of coping strategies. Gender differences has received very little attention in the current literature, especially regarding college students and international students (Sapranaviciute, Perminas, & Kavaliauskaite, 2011). Men and women may experience stress differently. They may demonstrate different coping responses to personally upsetting events (Nolen-Hoeksema, 1990; Sarafino, 2002; Sapranaviciute et al., 2011; Weissman et al., 1996). The literature suggests that male college students are more likely to experience more prolonged and severe psychological symptoms compared to women (Misra & Castillo, 2004; Thomas & Williams, 1991). Contrastingly, another study of the general population revealed that women tend to evaluate situations more negatively as compared to men (Eaton & Bradley, 2008). However, a study of 131 university students in the U.S. (aged 18–32 years) found no significant gender differences between utilization and effectiveness of task-oriented and emotion-oriented coping strategies

(Moret-Tatay, Beneyto-Arrojo, Laborde-boise, Martinez-Rubio, & Senent-capuz, 2016).

Gender preferences for coping strategies seem to be independent of the efficacy of those strategies on psychological wellbeing. For example, a study conducted on men and women from two universities in the U.S. reflected no gender differences between using task-oriented or avoidance-oriented coping strategies. However, avoidance-oriented strategies increased the impact of stress, but only among the male students (Felsten, 1998). Women are postulated to experience higher negative affectivity, which predicts both emotion-oriented and avoidance-oriented coping. Their preference for emotion-focused coping strategies remains significant, even when the perceived stressor appraisals are controlled (Eaton & Bradley, 2008).

Moreover, both men and women may utilize emotion-oriented coping strategies such as emotional regulation to cope with stress. Women more often reported expressing their feelings; however, men more often reported controlling their emotions, accepting the problem, or not thinking about the situation (Milkie & Thoits, 1993). Others alleged that women usually deal with the same levels of stress more overtly and tend to choose emotion-oriented coping strategies such as venting emotions and seeking social connections (Thomas & Williams, 1991; Misra & Castillo, 2004) more so than men. In a Spanish study based on 762 adolescents (age range = 16–16 years), problem solving, acceptance, emotional expression, rumination, and emotional regulation were most widely demonstrated by girls; however, boys demonstrated frequent use of acceptance, positive thinking, and cognitive restructuring (Pascual, Conejero, & Etxebarria, 2016).

Research Questions

The goal of this study is to explore the relationship between international students' sense of coherence and connectedness and their association with three dimensions of coping strategies

(task-oriented, emotion-oriented, and avoidance-oriented). This goal will be achieved by answering the following five research questions:

Research question 1. How is perceived sense of coherence associated with choice of coping strategies among international students?

- *Hypothesis 1a.* Perceived sense of coherence is positively associated with choice of task-oriented coping strategies among international students.

- *Hypothesis 1b.* Perceived sense of coherence is positively associated with choice of emotion-oriented coping strategies among international students.

- *Hypothesis 1c.* Perceived sense of coherence is negatively associated with choice of avoidance-oriented coping strategies among international students.

Research question 2. How is perceived sense of connectedness associated with choice of coping strategies among international students?

- *Hypothesis 2a.* Perceived sense of connectedness is positively associated with choice of task-oriented coping strategies among international students.

- *Hypothesis 2b.* Perceived sense of connectedness is positively associated with choice emotion-oriented coping strategies among international students.

- *Hypothesis 2c.* Perceived sense of connectedness is negatively associated with choice of avoidance-oriented coping strategies among international students.

Research question 3. Does gender moderate the relationship between sense of coherence and coping strategies among international students?

- *Hypothesis 3a.* Perceived sense of coherence is more positively related to task-oriented coping strategies among male international students compared to female international students.

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- *Hypothesis 3b.* Perceived sense of coherence is more positively related to emotion-oriented coping strategies among female international students compared to male international students.

- *Hypothesis 3c.* Perceived sense of coherence is more negatively related to avoidance-oriented coping strategies among male international students compared to female international students.

Research question 4. Does gender moderate the relationship between perceived sense of connectedness and coping strategies among international students?

- *Hypothesis 4a.* Perceived sense of connectedness is more positively related to task-oriented coping strategies among male international students compared to female international students.

- *Hypothesis 4b.* Perceived sense of connectedness is more positively related to emotion-oriented coping strategies among female international students compared to male international students.

- *Hypothesis 4c.* Perceived sense of connectedness is more negatively related to avoidance-oriented coping strategies among male international students compared to female international students.

CHAPTER 2

METHODOLOGY

The study is based on the 2011 Survey of Distress, Suicidality, and Student Coping (SDSSC) conducted by the National Research Consortium of Counseling Centers. The 2011 SDSSC is a 79-item, web-based survey that investigated students' personal, social, and campus-level factors related to a recent stressful period and their utilization of resources and coping behaviors. The items were developed by extensively reviewing the current literature and the current directives from national research and public health agencies.

Participants

The National Research Consortium of Counseling Centers utilized a random sampling strategy that allowed each campus to yield a sufficient number of students ($N = 26,000$) from its own population to allow for individual campus-level analyses. For this study, eligible participants met the following inclusion criteria: self-identification as an international student at either the undergraduate or graduate level. Participants who did not meet the criteria were excluded from consideration.

Table 1 presents the sample's demographic makeup of 2,592 international students. Students' ages ranged from 18 to 95 years ($M = 26.78$ years, $Mdn = 26.00$ years, $SD = 6.06$ years). There were 1,230 women (47.5%), 1,356 men (52.4%), 575 undergraduate students (22.4%), and 1,997 graduate students (77.6%). Asians occupied the biggest proportion with 1,390 (53.6%) students. Additionally, 368 (14.2%) international students were reported as white, 275 (10.6%) as Middle Eastern, 147 (5.7%) as Hispanic, 146 (5.6%) as black, 2 (0.1%) as Native Hawaiian, and 96 (3.7%) as multiracial. Further, 161 (6.2%) students checked "other" for ethnicity. Concerning age groups, 376 (15.0%) participants were 18–21 years old, 840 (33.5%)

were 22–25 years old, 688 (27.4%) were 26–29 years old, 527 (21.0%) were 30–39 years old, and 76 (3.0%) were aged ≥ 40 years. Although all participants were included when establishing measurement models, we did not consider the three participants who self-identified as transgender or six participants who did not identify their gender when examining the moderating effects of gender.

Measures

   Coherence. Sense of coherence was measured using four items extracted from the 2011 SDSSC (Drum et al., 2016). In a study of 26,742 college students, an exploratory factor analysis (EFA) was conducted and results indicate that the coherence of students' perception of their sense of self, in relation to the broader world, is measured by four items: (a) "How capable were you in managing these challenges?" (b) "How motivated were you to manage these challenges?" (c) "How meaningful did you view your life to be?" and (d) "To what extent were you able to understand what needed to be done to face these challenges?" (RMSEA = .051; CFI/TLI = .996/.987; SRMR = .010). Item anchors ranged from 1 (*not at all capable*) to 5 (*very capable*) for item (a); 1 (*not at all motivated*) to 5 (*very motivated*) for item (b); 1 (*not at all meaningful*) to 5 (*very meaningful*) for item (c); and 1 (*not at all able to understand*) to 5 (*very capable to understand*) for item (d). Items were summed, and higher scores indicated a higher sense of coherence. Cronbach's alpha was .92.

   Connectedness. Using data from the 2011 SDSSC, sense of connectedness was measured using four items. Drum et al. (2016) also conducted an EFA (RMSEA = .101; CFI/TLI = .987/.962; SRMR = .021) using the following items: (a) How understood by others did you feel? (b) How cared for by others did you feel? (c) How much did you feel that you could count on others? and (d) How comfortable did you feel making new connections with others? Item

anchors ranged from 1 (*not at all understood*) to 5 (*very understood*) for item (a); 1 (*not at all cared for*) to 5 (*very cared for*) for item (b); 1 (*not at all able to count on others*) to 5 (*very much able to count on others*) for item (c); and 1 (*not at all comfortable*) to 5 (*very comfortable*) for item (d). Items were summed, and higher scores indicated a higher sense of connectedness. Cronbach's alpha was .92.

Coping strategies. According to previous research, there are three primary types of coping strategies: (a) task-oriented coping, (b) emotion-oriented coping, and (c) avoidance-oriented coping (Cohan, Jang, & Stein, 2006; Endler & Parker, 1994). Using Endler and Parker's coping framework, the following eight items from the 2011 SDSSC were identified as coping items and grouped accordingly.

Task-oriented strategies. Task-oriented coping strategies indicate the adoption of new behaviors or skills to manage the problem and changing or eliminating the source of stress. To assess for choice of in the participant's coping strategies during the most stressful period of the past 12 months, respondents were asked, "Which of the following behaviors or attitudes did you use to try to manage this stressful period? (select all that apply)" Three methods were identified: (a) eating healthy, (b) exercising, and (c) sleeping.

The results were measured on a binary scale (1) *true* and (2) *false*. Data was reverse coded to (1) *false* and (2) *true* for easier interpretation. Higher scores indicate greater likelihood that the individual will choose task-oriented strategies. For this set of items, Cronbach's alpha was 0.44. Because of this low alpha level (Shook, Ketchen, Hult, & Kacmar, 2004), we used the latent variable to test the proposed factor structure within a structural equation modeling (SEM) framework.

Emotion-oriented strategies. Emotion-oriented coping strategies are usually conceptualized as being geared toward managing the emotions associated with the stressor. The main strategies are altering the meaning of the stressor or diverting attention away from it. To assess for choice of their coping strategies during the most stressful period of the past 12 months, respondents were asked, "Which of the following behaviors or attitudes did you use to try to manage this stressful period? (select all that apply)" Three methods were identified: (a) acknowledging and allowing myself to feel my emotions; (b) focusing on a positive aspect of the situation or a lesson learned; and (c) prayer, meditation, or spirituality.

The results were measured on a binary scale (1) *true* and (2) *false*. Data was reverse coded to (1) *false* and (2) *true* for easier interpretation. Higher scores indicate greater likelihood that the individual will choose emotion-oriented strategies. For this set of items, Cronbach's alpha was 0.26. Because of the low alpha value (Shook et al., 2004), we used the latent variable to test the proposed factor structure within a SEM framework.

Avoidance-oriented strategies. Adaptive coping methods such as task-oriented and emotion-oriented are typically reported as enhancing functioning. Avoidance-oriented coping strategies also reduce symptoms. This type of maladaptive coping is characterized by either subconscious or conscious dissociation or escape from the stressor. To assess for choice of their coping strategies during the most stressful period of the past 12 months, respondents were asked, "Which of the following behaviors or attitudes did you use to try to manage this stressful period? (select all that apply)?" Two methods were considered: (a) distracting myself with work, school, or leisure activities and (b) suppressing or avoiding my emotions.

The results were measured on a binary scale (1) *true* and (2) *false*. Data was reverse coded to (1) *false* and (2) *true* for easier interpretation. Higher scores indicate greater likelihood

that the individual will choose avoidance-oriented strategies. For this set of items, Cronbach's

alpha was 0.26. Because of the low alpha value (Shook et al., 2004), we used the latent variable

to test the proposed factor structure within a SEM framework.

CHAPTER 3

RESULTS

Preliminary Analyses

Data met the statistical assumptions for multicollinearity after examining correlations of interested variables, including control variables (i.e., age, race, status). Based on Brown's proposition (2006), when modelling ordinal and binary data, the weighted least square means and variance adjusted (WLSMV) estimation was used. If data are missing, the missing data concerning the exogenous and endogenous variables are replaced using multiple-imputation methods (Klein, 2016). Table 2 presents means, standard deviations, and descriptive statistics of all observed variables by gender. Table 3 represents the correlation matrix for all interested variables.

Marthens (2005) argued that the model of fit cannot be adequately retained by a single fit index. To minimize Type I and Type II errors in making decisions regarding model retention, Hu and Bentler (2017) suggested considering multiple cutoff fit indices for a more comprehensive model evaluation. Goodness of fit of each model is determined by the following methods: (a) examining eigenvalues, (b) using cut off values of conventional fit indices, such as the chi-square test of significance (χ^2), (c) using root mean square error of approximation (RMSEA), (d) using standardized root mean square residual (SRMR), (e) using the comparative fit index (CFI), and (f) using the Tucker-Lewis Index (TLI). Klein (2016) postulated that χ^2 is nonsignificant ($p > .05$) if a model has an adequate fit to the data; however, it is sensitive to sample size and lacks standardization. Consequently, researchers usually calculate the ratio of χ^2 to degrees of freedom (χ^2/df), with values ≤ 3.0 indicating a good model fit (Kenny & McCoach, 2003; Mclntosh, 2006; Tabachnick & Fidell, 2007). Researchers suggested that lower numbers of RMSEA (ranges from 0 to 1) mean a better fit of the data, with values of $\leq .06$ and $\leq .05$

indicative of an acceptable model fit and a good model fit to the data, respectively (Steiger, 1998, 2007). SRMR (also ranging from 0 to 1) values ≤ .10 and ≤ .08, suggest an acceptable and a close model fit, respectively. CFI values of ≥ .90 and ≥ .95, respectively, represent adequate fit and good fit (Loehlin & Beaujean, 2017; Marthens, 2005; Muthén & Muthén, 2017; Weston & Gore, 2006). There are two main-joint criteria for retaining a model: (a) CFI ≥ .95 and SRMR ≤ .09 and (b) SRMR ≤ .09 and RMSEA ≤ .06 (Hu & Bentler, 1999). Additionally, weighted root mean square residual (WRMR), with a cutoff value close to 1.0 (Yu, 2002), is a new fit index. WRMR was proposed by Muthén and Muthén (1998–2017); however, it has not been examined and established. Therefore, its trustworthiness is negatively related to sample size (DiStefano, Jin, Ning, & Dexin, 2018), and it will not be considered in this study.

A confirmatory factor analysis (CFA) was conducted to establish the underlying measurement model of sense of coherence, sense of connectedness, task-oriented, emotion-oriented, and avoidance-oriented coping strategies. Table 4 presents fit indices including χ^2, RMSEA, CFI, TLI, SRMR, and WRMR. Because the responses about sense of coherence and connectedness items were ordinal, ranging from 1 to 5, and the responses about coping strategy items were binary, with 1 indicative of "false" and 2 indicative of "true," parameters were estimated using WLSMV estimation in Mplus Version 8 (Muthén & Muthén, 2017).

Coherence

A CFA was conducted to examine the four-item measurement model of the sense of coherence factor for the sample of international students. Most (2,438 out of 2,592) participants responded to all four items that were used to measure perceived level of coherence. As presented in Table 4, the measurement model fit the data [χ^2(2) = 42.294; RMSEA = .091; CFI/TLI

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= .995/.986; SRMR = .019; and WRMR = 1.750]. The measurement model of sense of

coherence is presented in Figure 1.

Connectedness

To confirm the four-item measurement model of the connectedness factor for the sample

of international students, another CFA was conducted. Most (2,435 out of 2,592) participants

responded to all four items used to measure connectedness. As presented in Table 4, the

measurement model fit the data [χ^2 (2) = 58.645; RMSEA = .108; CFI/TLI = .995/.984; SRMR

= .023; and WRMR = 1.884]. The measurement model of sense of connectedness is presented in

Figure 2.

Coping Strategies

The third CFA was conducted to establish the eight-item measurement model of the

coping strategies factor. All 2,592 participants responded to all eight items used to measure

"coping strategies," "task-oriented strategies," "emotion-oriented strategies" and "avoidance-

oriented strategies." As presented in Table 4, the measurement model of coping strategies was

valid for international students [χ^2(17) = 64.509; RMSEA = .033; CFI/TLI = .928/.882; SRMR

= .045 and WRMR = 1.392]. The measurement model of coping strategies is presented in Figure

3.

Main Analyses

Analyses were conducted to examine the hypothesized model (as illustrated in Figure 4)

within a SEM framework using the statistical modeling program Mplus Version 8 (Muthén &

Muthén, 2017). According to Spector and Brannick (2011), it is common practice to statistically

control for uninterested variables to reduce any distortions or confounding effects. Consequently,

variables including age, race, and status (i.e., undergraduate and graduate) are held constant in

Mplus to yield accurate estimations of the relationships between endogenous and exogenous variables.

Model fit with moderation effects. A multiple group analysis was conducted to test the hypothesis that gender moderates relations within a model of coping strategies for a sample of international students. With WLSMV estimation, the preferred method for modelling binary data (Brown, 2006), the fully unconstrained model is compared to a fully constrained model. All paths are free to vary across gender in the former model and held to be equal in the latter model. Because the chi-square value for WLSMV cannot be used for chi-square difference tests readily, a chi-squared difference test using the Mplus DIFFTEST option was conducted to test if there were gender differences in the model (Muthén & Muthén, 2017; Satorra, & Bentler, 2010).

As reflected in Table 5, the fit indices of the unconstrained model were $\chi^2(285) = 711.823$, RMSEA = .036, CFI/TLI = .913/.897, WRMR = 1.942. For the constrained model, where all parameters were held equal across gender, fit indices were $\chi^2(291) = 711.579$, RMSEA = .036, CFI/TLI = .914/.901, WRMR = 2.010. Using the chi-square test of difference, results revealed that the fully constrained model and the unconstrained model significantly differ from one another [$\Delta\chi^2(6) = 16.955$, p < .001]. The unconstrained model (i.e., all paths are free to vary across gender) had a better fit. This indicates that gender moderates the relationships between coherence, connectedness, and coping strategies when controlling for age, race, and status (i.e., undergraduate and graduate students).

To determine if gender moderates specific paths, this study conducted six chi-square difference tests, by constraining one parameter (e.g., path) at a time in the unconstrained model, and then comparing it to the fully unconstrained model (see Table 6). Conducting six analyses on the same dependent variables increases the possibility of a Type 1 error; therefore, a Bonferroni

correction needs to be conducted to adjust the p-value (Armstrong, 2014). According to the calculation method proposed by Haynes (2013), dividing the original α-value (.05) by the number of comparisons (6) on the same dependent variables, the adjusted p-value is .008. A path is believed to be moderated by gender if it is determined to be statistically significant using this adjusted *p*-value. Results indicate that the direct paths from connectedness to emotion-oriented strategies [$\Delta\chi^2(4) = 14.096$, p < .008] differ by gender.

Then this study ran the partially constrained model where only direct paths that are moderated by gender can be freely estimated across gender groups. Fit indices indicated that the partially constrained model (see Figure 5) is retainable [$\chi^2(290) = 695.321$, p < .001, RMSEA = 0.035, CFI/ TLI = 0.917/0.904, WRMR = 1.960].

Direct effects. Figure 5 represents the final SEM model, with bolded lines indicative of paths moderated by gender. Table 7 provides a preview of the standardized and unstandardized path estimates, and standard errors for each hypothesized path. There is only one significant path: from connectedness to emotion-oriented strategies.

Among male international students, sense of coherence was positively associated with usage of emotion-oriented strategies (β = .187; S.E. = .074, p < .01) and negatively associated with choice of emotion-oriented strategies (B = -.274; S.E. = .089, p <.01) and avoidance-oriented strategies (β = -.195; S.E. = .062, p < .01). Connectedness was negatively correlated with avoidance-oriented strategies usage (β = -.238; S.E. = .065, p < .001). About 11.8% of the variance in emotion-oriented strategies (R^2 = .118) and 19.7% of the variance in avoidance strategies (R^2 = .197) is explained by sense of coherence and connectedness.

On the other hand, among female international students, sense of coherence is positively associated with usages of emotion-oriented strategies (β = .185; S.E. = .074, p < .01) and

negatively associated with avoidance-oriented strategies (β = -.193; S.E. = .061, p < .01). Sense of connectedness is negatively associated with avoidance-oriented strategies (β = -.236; S.E. = .064, p < .001). In addition, sense of coherence and connectedness explain 13.5% of the variance in emotion-oriented strategies (R^2 = .135), and 21.5% of the variance in avoidance-oriented strategies (R^2 = .215).

CHAPTER 4

SUMMARY AND DISCUSSION

Limited studies have examined how sense of coherence and sense of connectedness are related to psychological wellbeing of international students, particularly their use of coping strategies (Drum et al., 2016; Grayson, 2007; He, 2012). Therefore the purpose of this dissertation is to investigate the relationships between sense of coherence; sense of connectedness; and international students' choice of task-oriented, emotion-oriented, and avoidance-oriented coping strategies.

The results suggest that perceived sense of coherence was not positively associated with task-oriented coping for participants during their recent most stressful time [Hypothesis 1a]. This is contrary to previous research that showed individuals with a higher sense of coherence were more likely to manage challenges constructively, develop transcultural competencies, and use effective coping strategies including task-oriented coping (Antonovsky, 1987; Eriksson & Lindstrom, 2005; Feldt et al., 2011; Fok et al., 2005; Lazarus & Folkman, 1987; Løvlien et al., 2017; Mayer, 2011; Suominen et al., 1999; Suominen & Vahtera, 2010), or that utilization of task-oriented strategies enhances self-esteem, self-efficacy, and sense of mastery (e.g., Sandler et al., 1997; Smith et al., 2016; Zeidner & Endler, 1996).

A plausible reason why there was no significant association between sense of coherence and task-oriented strategies is that most previous findings about sense of coherence examined non-college students (Grayson, 2008, Rivera et al., 2017), including studies supporting the original hypothesis; therefore, they may not be generalizable to international students. For example, international students may demonstrate a distinct pattern of utilizing coping strategies as compared to their domestic counterparts (Amponsah, 2010; Chai, 2009). In addition, the

above-mentioned research in this area did not conclude that task-oriented strategies are preferred over emotion-oriented and avoidance-oriented coping strategies when sense of coherence is higher. A study comparing 98 international students and 258 domestic students found that, although domestic students tended to look inward and vent more in stressful situations, international students tended to use certain emotion-oriented and avoidance-oriented strategies more frequently such as: looking inward, venting, religious coping, denial, and behavioral denial (Sapranaviciute et al., 2012). Perhaps the current participants also preferred other types of coping than task-oriented strategies, regardless of their degree of coherence.

Sense of coherence was positively associated with usage of emotion-oriented strategies for both genders [Hypothesis 1b]. Results suggest that the more an international student sees the external environment as comprehensible, manageable, and meaningful, the more likely they will be to choose emotion-oriented strategies to resolve problems. This finding supports previous research that sense of coherence improves an individual's stress management skills to constructively internalize available coping resources and employ effective coping strategies (Antonovsky, 1987; Eriksson & Lindstrom, 2005; Feldt et al., 2011; Fok et al., 2005; Lazarus & Folkman, 1987; Mayer, 2011; Løvlien et al., 2017; Suominen et al., 1999; Suominen & Vahtera, 2010) and international students typically employ emotion-oriented coping strategies in host countries when encountering stressful situations (Brinson & Kottler, 1995; Sapranaviciute et al., 2012).

There was no association between perceived sense of connectedness with usage of task-oriented strategies among participants of both genders [Hypothesis 2a]. Similarly, in opposition to the original hypothesis, perceived sense of connectedness was negatively associated with usage of emotion-oriented strategies, and the negative association was only significant for male

participants [Hypothesis 2b]. These findings are contrary to previous research that showed social connectedness positively predicted reliance on both task-oriented and emotion-oriented coping strategies such as behavioral attempts to directly alter the stressor, acceptance, and cognitive restructuring (Fraser & Pakenham, 2009).

A plausible explanation for these findings is that social connectedness may ameliorate adjustment concerns, perceived discrimination, acculturative stress, and psychological concerns in general (Duru & Poyrazli, 2011; Maslow, 2011; Pearce, 2015; Yeh & Inose, 2003; Yusoff & Othman, 2011), which perhaps also reduces international students' motivation to utilize task-oriented or emotion-oriented coping strategies. Furthermore, Fraser and Pakenham's (2009) conclusions were reached by studying adolescents and the concept of social connectedness; therefore, they may not be generalizable to international students or to the broader concept of sense of connectedness.

Another explanation may exist as to why the association between sense of connectedness and emotion-oriented strategies usage was negative among male participants and insignificant among female participants [Hypothesis 2b]: male university students usually have distinct stress perception and level of negative affect (Misra & Castillo, 2004; Thomas & Williams, 1991), and perceived stress level is considered to be positively associated with usage of emotion-oriented strategies (e.g., Asberg et al., 2008; Blalock & Joiner, 2000; Dwyer & Cummings, 2001; Dyson & Renk, 2006; Kariv & Heiman, 2005; Sideridis, 2006). Perhaps male participants have lower levels of perceived stress when their sense of connectedness increases. Future studies are encouraged to examine choice of coping strategies and perceived stress level in juxtaposition.

There are two more potential reasons why there was no association between sense of coherence/connectedness and task-oriented strategies [Hypotheses 1a and 2a], and between sense

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of connectedness and emotion-oriented strategies among female participants [Hypothesis 2b]. First, the non-significant results may be due to the limited number of items included in the scale to measure each latent factor. Though shortening a scale may reduce biases that stem from boredom or fatigue (Schmitt & Stults, 1985), it is generally believed that a quality measure should consist of four to six items to encompass all conceptual dimensions (Harvey, Billings, & Nilan, 1985; Hinkin & Schriesheim, 1989; Hinkin, Tracey, & Enz, 1997). Degrees of sense of coherence, sense of connectedness, task-oriented strategies, emotion-oriented strategies, and avoidance-oriented strategies were determined based on four, four, three, three, and two items respectively. Therefore, these items may not be adequate to capture common aspects of coherence and connectedness as well as task-oriented and emotion-oriented strategies that international students typically use. Moreover, choice of coping strategies is related to length of stay in the U.S. (Mena, Padilla & Maldonado, 1987), personality, demographics, level of external support (Darling et al., 2007; Eisenbarth, 2012), appraisal of the stressor, and coping resources (Lazarus & Folkman, 1987), none of which were fully examined and controlled in this study. For example, participants' access to coping resources could potentially limit a participant to using certain task-oriented and emotion-oriented strategies even though the desire to use them increases as the sense of coherence or connectedness increases. Unfortunately, this remains unknown in this study. Participants may lack transportation to the gym to exercise or they may experience a tight schedule so that they cannot practice meditation or go to church often.

In support of previous hypotheses, the associations between perceived sense of coherence and avoidance-oriented strategies [Hypothesis 1c], and perceived sense of connectedness and avoidance-oriented strategies [Hypothesis 2c] were both negative among participants of both genders. This implies that the more an international student sees the external environment as

comprehensible, manageable, and meaningful, or the more they feel connected to self, others, and the surrounding environment, the less likely they are to disengage from stressful life events. This finding supports previous research that increased sense of coherence positively predicts a person's chance of internalizing coping resources to implement effective coping strategies (Antonovsky, 1987; Eriksson & Lindstrom, 2005; Feldt et al., 2011; Fok et al., 2005; Lazarus & Folkman, 1987; Løvlien et al., 2017; Mayer, 2011; Suominen et al., 1999; Suominen & Vahtera, 2010), and increased social connectedness reduces reliance on avoidance-oriented strategies (Fraser & Pakenham, 2009).

In opposition to previous research that showed women and men may appraise and cope with stressors differently (Eaton & Bradley, 2008; Felsten, 1998; Misra & Castillo, 2004; Nolen-Hoeksema, 1990; Sarafino, 2002; Sapranaviciute et al., 2011; Thomas & Williams, 1991; Weissman et al., 1996), the current results suggest that gender does not moderate the associations between sense of coherence and task-oriented [Hypothesis 3a], emotion-oriented [Hypothesis 3b] and avoidance-oriented strategies [Hypothesis 3c], and between sense of connectedness and task-oriented [Hypothesis 4a] and avoidance-oriented strategies [Hypothesis 4c]. Moret-Tatay et al. (2016) found that gender does not influence university students' utilization of task-oriented and emotion-oriented strategies; however, they did not provide any explanations. Additionally, Felsten (1998) found no gender differences concerning employment of task-oriented and avoidance-oriented strategies among university students, referring to the role-constraint hypothesis to support his findings. The role-constraint hypothesis asserts that if men and women experience the same stressors and use the same coping strategies, they play the same roles (Folkman & Lazarus, 1980; Rosario, Shinn, Morch, & Huchabee, 1988). The role-constraint hypothesis could also explain why gender does not moderate the above-mentioned associations,

because male and female participants included in this study may play the same roles and experience the same stressors as do international students.

The results confirmed that gender moderates the association between sense of connectedness and emotion-oriented strategies [Hypothesis 4b]; however, only the path between perceived sense of connectedness and emotion-oriented coping strategies among male participants was significantly negative. This finding supports previous research that showed usage of coping strategies differs across genders (Matud, 2004; Nolen-Hoeksema, 1990; Sarafino, 2002; Weissman et al., 1996); specifically, women and men may utilize distinct types of emotion-oriented strategies (Milkie & Thoits, 1993; Misra & Castillo, 2004; Pascual et al., 2016; Sapranaviciute et al., 2011; Thomas & Williams, 1991). For example, men may appraise stressors more positively, and hence, use emotion-oriented coping strategies less often when controlling perceived stress level (Eaton & Bradley, 2008); and international male students mostly use positive reinterpretation and acceptance (Sapranaviciute et al., 2012).

Limitations

This study had several limitations. Like other survey research among college populations, the results based on the collected data may not be representative of the general international student population (American College Health Association, 2014). Further research on the concerted functioning of these observed variables is needed to enhance the generalizability and inferences of correlation or causality. Along with this limitation, this study did not investigate the impact of various demographic characteristics on variable correlations (e.g., age, socioeconomic status, country of origin, and race). Future research should examine subgroups of international students for a more accurate and comprehensive understanding of this population's subjective wellbeing.

Future studies should also address any discrepancies between international students and their non-international counterparts. Specifically, differences in the factors contributing to the choices of coping strategies should be identified and further examined. For example, this study did not consider and assess impacts of international students' socio-demographic factors, access to coping resources, length of stay in the U.S., perceived stress level, home and host country cultural differences and acculturation level, as well as their previous pattern of coping strategies utilization in home countries. Additionally, the survey items utilized in this study have not been tested in any pilot studies to establish validity and reliability. Moreover, only 16 items were utilized to capture generic concepts, which could be enhanced through replicating the research with traditionally validated measures. The validity of this study could also be strengthened by considering international students' language proficiency. This would ensure that all survey items are appropriately comprehended and answered correctly. Finally, this study focused only on students' subjective experiences during a stressful period and does not include international students who returned to their home countries due to the stressful period. Consequently, the results are most pertinent to intervention programs. Examining the association strength between coherence, connectedness, and choices of coping strategies during less stressful times could provide additional values for prevention programs.

Implications

Although coping strategies research has yielded mixed results, it is widely acknowledged that task-oriented and emotion-oriented strategies may need to be encouraged because of their association with psychological wellbeing (Bouteyre et al., 2007; Campbell & Svenson, 1992; de Ridder & van Heck, 2004; Endler & Parker, 1999; Hahn, 2011; McWilliams et al., 2003; Parker & Endler, 1992; Park et al., 2001; Ra & Trusty, 2015; Ryan & Teibell, 2000; Sandler et al.,

1997; Smith et al., 2016; Wills & Hirky, 1996; Zakowski et al., 2001; Zeidner & Endler, 1996), and avoidance-oriented strategies might be discouraged for being positively related with numerous mental health concerns (Bektas et al., 2009; Carver & Scheier, 1994; Chai, 2009; Kim et al., 2016; Kosic, 2004; Kuo et al., 2006). Therefore, the coherence, connectedness, and coping strategies model provides insights regarding advocating international students' strategic utilizations of coping strategies by managing their levels of sense of coherence or sense of connectedness.

When an international student reports low usage of emotion-oriented strategies or high usage of avoidance-oriented strategies, mental health professionals may focus on enhancing an international students' sense of coherence. Possible approaches to strengthen sense of coherence include the following: (a) Reflection: considering and processing clients' perceptions, beliefs, values, and emotions about the presenting concerns (Henderson et al., 2004); (b) Empowerment: exploring existing available resources, and encouraging clients to use them during stressful situations (Commers, Gottlieb, & Kok, 2007); and (c) Advocacy: on behalf of clients, recommending and promoting public support to create a supportive environment in which coping resources are available (Steele, 2008).

There are several explanations supporting the above-mentioned interventions. First, a closer examination of Antonovsky's salutogenic model (1979, 1987) suggests that sense of coherence has two underlying mechanisms, behavioral and perceptual, which could be increased through two processes, empowerment and reflection (Super et al., 2016). For example, the reflection process may facilitate a person to adjust ingrained beliefs, attitudes, and values (Folkman, 2013), and a reflection process based on mindfulness may increase comprehensibility (i.e., understanding the predicaments), manageability (i.e., feeling confident to address the

predicaments), and meaningfulness (i.e., believing that the predicaments are worthy of efforts) (Kabat-Zinn, 2003; Weissbecker et al., 2002). Additionally, sense of coherence may become higher when an individual is motivated and enabled to use generalized resistance resources (Amirkhan & Greaves, 2003).

Second, some individuals may fail to address challenges due to a dearth of external resources and are wrongly accused of lacking individual motivation or ability (Watt, 2007). Kickbusch (2003) and Dooris (2006) argued that, due to the complex interplay of individual, sociopolitical, and cultural factors, health interventions not only need to happen at individual and internal levels, but also at external levels to improve the social environment in which individuals are dealing with stressors. To prevent victim-blaming or stigmatization, and to attend to the impacts of both individual and environmental factors on behaviors (Eriksson & Lindström, 2008), advocacy was included as an intervention to increase sense of coherence.

Moreover, a possible intervention to address an international student's usage of avoidance-oriented strategies is to strengthen their sense of connectedness. Besides mental health professionals, interventions to manage sense of connectedness may require participation of many other individuals, such as peers, professors, policymakers, administrative staff, and other supporting staff in the higher education system (Blum & Libbey, 2004; Catalano et al., 2004; Roffey, 2011; Rowe, Stewart & Patterson, 2007). For individuals in the higher education system, they may consider several mechanisms that underlie development of school connectedness, including the following: (a) Safety: ensuring physical and emotional safety through procedures such as anti-violence programs (Blum & Libbey, 2004); (b) Inclusion: involving all community members such as peers and professors, inviting their active participation, and maintaining equal partnership and cross-cultural dialogue between them (Blum & Libbey, 2004; Lehtomäkia,

Moateb, & Posti-Ahokasc, 2016; Rowe et al., 2007); (c) Support: fostering democracy through improving school policies and organizational structures, referring students to resources (Rowe et al., 2007); and (d) Commitment: fostering a positive learning environment with effective classroom management skills, as well as showing interest in students' wellbeing and helping students to view themselves as progressing and achieving by identifying and amplifying student strengths and qualities (Blum & Libbey, 2004; Catalano et al., 2004; Centers for Disease Control and Prevention [CDC], 2009).

To expand the above paragraph, strategies mental health professionals may integrate to increase international students' sense of connectedness include the following: (a) Alliance: building rapport with clients to role model open communication, empathy, and establishing or maintaining relationships (CDC, 2009; Teyber & Teyber, 2011); (b) Psychoeducation: teaching or suggesting pro-social values as well as academic, emotional, and social skills such as assertiveness (Blum & Libbey, 2004; Bowman, & Myrick, 1987; CDC, 2009); and (c) Meaning-finding: encouraging activities that engage the individuals with others, such as clubs, teams, or support groups (Blum & Libbey, 2004).

These findings also suggest several strategies international students could utilize to increase their sense of coherence and connectedness: (a) Engage in self-reflection to enhance self-awareness of values, beliefs and attitudes, and how these may facilitate managing predicaments(Folkman, 2013; Super et al., 2016); (b) Practice self-empowerment by focusing on resistance resources (Amirkhan & Greaves, 2003) and identifying and amplifying strengths and qualities (Blum & Libbey, 2004; Catalano et al., 2004; Centers for Disease Control and Prevention [CDC], 2009; Kabat-Zinn, 2003; Weissbecker et al., 2002); (c) Engage in self-advocacy to decrease stigmatization and victim blaming (Eriksson & Lindström, 2008); (d)

Ensure physical and emotional safety (Blum & Libbey, 2004); (e) Join cross-cultural dialogue and partnership (Blum & Libbey, 2004; Lehtomäkia, Moateb, & Posti-Ahokasc, 2016; Rowe et al., 2007); (f) Participate in activities that may foster a sense of meaningfulness and broaden social connections such as clubs, teams, or support groups (Blum & Libbey, 2004). In addition to intentionally increasing sense of coherence and connectedness, international students may also benefit from mindful exploration and utilization of the examined task-oriented and emotion-oriented strategies.

Finally, results reveal that the higher a male international student's sense of connectedness is, the less likely he is to use emotion-oriented strategies. This also implies that process-oriented psychotherapy, which involves heavy emotional explorations (Grof, 2010), may be less acceptable to a male international student who feels more connectedness to himself, others, and the surrounding environment. Whereas it is counterintuitive and detrimental to reduce sense of connectedness, perhaps an appropriate response is to utilize the above-discussed approaches to increase male international students' sense of coherence to motivate greater usage of emotion-oriented strategies.

In sum, the knowledge generated by this dissertation has the potential to foster multicultural awareness and enhance the mental health prevention and intervention work of multiple disciplines of helping professionals, which can aid international students studying in the U.S. The results deepen the understanding of the mental wellbeing of international students because it is not only biological health that has an impact. Additionally, the results provide a blueprint for mitigating the effects of mental illness and will reduce the costs of addressing this population's emotional distress. The results contribute to a more holistic model of the interplay of factors that are significant for international students during times of high distress.

Consequentially, the results benefit professionals in the fields of psychology, psychiatry, public health, social work, and higher education. Universities and other educational institutions targeting international students may take action to promote campus environments to facilitate their adjustment process. For example, Stohl (2007) and Ramachandra (2011) proposed strategies such as expanding the ratio of international faculty and staff, enhancing international partnerships, improving course design, and providing more coping resources to international students.

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APPENDIX A: TABLES

Table 1

Sample Demographics (N = 2,595)

Demographics	Men (n = 1,356)	Women (n = 1,230)
Status (%)		
Undergraduate	238 (17.6%)	334 (27.2%)
Graduate	1103 (81.3%)	888 (72.2%)
Age (%)		
18–21 years	155 (11.4%)	219 (17.8%)
22–25 years	443 (32.7%)	395 (32.1%)
26–29 years	374 (27.6%)	314 (25.5%)
30–39 years	296 (21.8%)	230 (18.7%)
40+ years	32 (2.4%)	42 (3.4%)
Race/ethnicity (%)		
African American, of African descent, African, of Caribbean descent, or Black	74 (5.5%)	71 (5.8%)
Asian or Asian American (e.g., Chinese, Japanese, Korean)	707 (52.1%)	679 (55.2%)
Caucasian, White, of European descent, or European (Including Spanish)	169 (12.5%)	198 (16.1%)
Hispanic, Latino or Latina (e.g., Cuban American, Mexican American, Puerto Rican)	74 (5.5%)	73 (5.9%)
Middle Eastern or East Indian (e.g., Pakistani, Iranian, Egyptian)	184 (13.6%)	91 (7.4%)
Native American (e.g., Dakota, Cherokee) or Alaskan Native	0 (0.0%)	0 (0.0%)
Native Hawaiian/other Pacific Islander (e.g., Samoan, Papuan, Tahitian)	0 (0.0%)	2 (0.2%)
Other	88 (6.5%)	72 (5.9%)
Multiracial	54 (4.0%)	40 (3.3%)

Table 2

Descriptive Statistics of Measured Variables for Total Sample and by Gender (N = 2,595)

Variables	Score range	Mean (standard deviation)		
		Total	**Men**	**Women**
Coherence				
How capable were you of managing these challenges?	1–5	2.91 (2.58)	2.91 (2.76)	2.91 (2.37)
How motivated were you to manage these challenges?	1–5	3.04 (2.73)	2.96 (2.97)	3.11 (2.45)
How meaningful did you view your life to be?	1–5	3.20 (2.63)	3.13 (2.87)	3.28 (2.35)
Extent able to understand what needed to be done?	1–5	3.25 (2.69)	3.11 (2.99)	3.39 (2.32)
Connectedness				
How understood by others did you feel?	1–5	2.57 (2.75)	2.42 (3.01)	2.73 (2.44)
How cared for by others did you feel?	1–5	2.94 (2.71)	2.75 (2.93)	3.16 (2.44)
How much could you count on others?	1–5	2.61 (2.68)	2.46 (2.87)	2.77 (2.44)
How comfortable did you feel making new connections?	1–5	2.50 (2.56)	2.47 (2.87)	2.52 (2.30)
Task-oriented strategies				
Eating healthy	1–2	1.13 (.33)	1.11 (.31)	1.15 (.35)
Exercising	1–2	1.28 (.45)	1.29 (.46)	1.26 (.44)
Sleeping	1–2	1.29 (.45)	1.24 (.43)	1.34 (.47)
Emotion-oriented strategies				
Acknowledging and allowing myself to feel my emotions	1–2	1.42 (.49)	1.38 (.49)	1.46 (.50)
Focusing on a positive aspect of the situation or a lesson learned	1–2	1.35 (.48)	1.34 (.47)	1.36 (.48)
Prayer, meditation, or spirituality	1–2	1.23 (.42)	1.20 (.40)	1.25 (.44)

Avoidance-oriented strategies

Distracting myself with work, school, or leisure activities	1–2	1.30 (.46)	1.28 (.45)	1.32 (.47)
Suppressing or avoiding my emotions	1–2	1.13 (.34)	1.14 (.34)	1.13 (.34)

Table 3

Correlation among Variables of Interest

Variables	1	2	3	4	5
1. Coherence	------	.677***	.049	.307***	-.382***
2. Connectedness	.670***	------	.007	.167*	-.380***
3. Task-oriented Strategies	-.088	-.096	------	.361***	.085
4. Emotion-oriented Strategies	-.001	-.092	.153	------	-.016
5. Avoidance-oriented Strategies	-.340	-.352***	.177*	.178	------

Note. Correlations for men are presented below the diagonal (n = 1,356); correlations for women are presented above the diagonal (n = 1,230).

p < .05, **p* <.01, ***p* < .001.

Table 4

Confirmatory Factor Analysis Results of Coherence, Connectedness, and Coping Strategies

CFA Models	χ^2	*df*	CFI	TLI	RMSEA (90% CI)	SRMR	WRMR
Coherence	42.294***	2	.995	.986	.091 (.068, .116)	.019	1.750
Connectedness	58.645***	2	.995	.984	.108 (.085, .132)	.023	1.884
Three-factor coping Strategies	64.509***	17	.928	.882	.033 (.025, .042)	.045	1.392

Note. CFA = confirmatory factor analysis; χ^2 = chi-square test of significance; *df* = degree of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual; WRMR = weighted root mean square residual; Three-factor coping strategies include task-oriented strategies, emotion-oriented strategies, and avoidance-oriented strategies.

*p < .05, **p < .01, ***p < .001.

Table 5

Summary of Fit Statistics for the Multiple Group Analysis

Model	χ^2	*df*	CFI	TLI	RMSEA (90% CI)	WRMR	$\Delta \chi^2$	Δ df
Paths unconstrained	711.823***	285	.913	.897	.036 (.033, .040)	1.942		
Paths constrained	711.579***	291	.914	.901	.036 (.032, .039)	2.010	16.955**	6

Note. χ^2 = chi-square test of significance; *df* = degree of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; WRMR = weighted root mean square residual; $\Delta \chi^2$ = chi-square test of difference testing; Δ df = degree of freedom of difference testing.

p < .05, **p* < .01, ****p* < .001.

Table 6

Chi-Square Difference Tests from the Multiple-Groups Model, Gender as a Moderator

Path	$\Delta \chi^2$	Δ df
1. Coherence with task-oriented strategies	0.608	1
2. Connectedness with task-oriented strategies	2.040	2
3. Coherence with emotion-oriented strategies	4.154	3
4. Connectedness with emotion-oriented strategies	14.096*	4
5. Coherence with avoidance-oriented strategies	5.014	4
6. Connectedness with avoidance-oriented strategies	5.529	5

Note. $\Delta \chi^2$ = chi-square test of difference testing; Δ df = degree of freedom of difference testing.

NS = not significant.

*$p < .008$; *p*-value adjusted using the Bonferroni correction method.

Table 7

Unstandardized and Standardized Path Estimates and Standard Errors for the Final SEM Model by Gender

Endogenous variables	Exogenous variables	Men		Women	
		B (SE)	β (SE)	B (SE)	β (SE)
Coherence	How capable were you of managing these challenges?	.712*** (.021)	.711*** (.017)	.712*** (.021)	.711*** (.018)
	How motivated were you to manage these challenges?	.845*** (.029)	.739*** (.019)	.845*** (.029)	.708*** (.020)
	How meaningful did you view your life to be?	.911*** (.033)	.743*** (.021)	.911*** (.033)	.745*** (.021)
	To what extent could you understand what needed to be done?	.719*** (.025)	.677*** (.019)	.719*** (.025)	.669*** (.019)
Connectedness	How understood by others did you feel?	.877*** (.026)	.779*** (.018)	.877*** (.026)	.769*** (.020)
	How cared for by others did you feel?	.864*** (.029)	.739*** (.019)	.864*** (.029)	.730*** (.021)
	How much could you count on others?	.824*** (.029)	.701*** (.019)	.824*** (.029)	.664*** (.019)

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	How comfortable did you feel making new connections?	.765*** (.029)	.634*** (.019)	.765*** (.029)	.616*** (.020)
Task-oriented strategies	Eating healthy	1.336*** (.318)	.931** (.103)	1.336*** (.318)	.801** (.068)
	Exercising	.703*** (.100)	.556** (.066)	.703*** (.100)	.576** (.055)
	Sleeping	.659*** (.096)	.399** (.060)	.659*** (.096)	.552** (.056)
Emotion-oriented strategies	Acknowledging and allowing myself to feel my emotions	.433*** (.095)	.260** (.069)	.433*** (.095)	.422** (.073)
	Focusing on a positive aspect of the situation or a lesson learned	.348*** (.080)	.301** (.065)	.348*** (.080)	.351** (.070)
	Prayer, meditation, or spirituality	.442*** (.103)	.617** (.105)	.442*** (.103)	.429** (.079)
Avoidance-oriented strategies	Distracting myself with work, school, or leisure activities	.312*** (.070)	.350** (.062)	.312*** (.070)	.332** (.067)
	Suppressing or avoiding my emotions	1.369* (.671)	.843** (.103)	1.369* (.671)	.840** (.116)

Task-oriented strategies	Coherence	.024 (.054)	.024 (.053)	.024 (.054)	.024 (.054)
	Connectedness	- .067 (.054)	-.066 (.054)	- .067 (.054)	-.067 (.054)
Emotion-oriented strategies	Coherence	.199** (.081)	.187** (.074)	.199** (.081)	.185** (.074)
	Connectedness	-.292** (.100)	-.274** (.089)	.050 (.101)	.047 (.093)
Avoidance-oriented strategies	Coherence	-.218** (.072)	-.195** (.062)	-.218** (.072)	-.193** (.061)
	Connectedness	-.266*** (.077)	-.238*** (.065)	-.266*** (.077)	-.236*** (.064)

Note. B = unstandardized coefficients; β = standardized coefficients; SE = standard

errors.

*p < .05; **p < .01; ***p < .001.
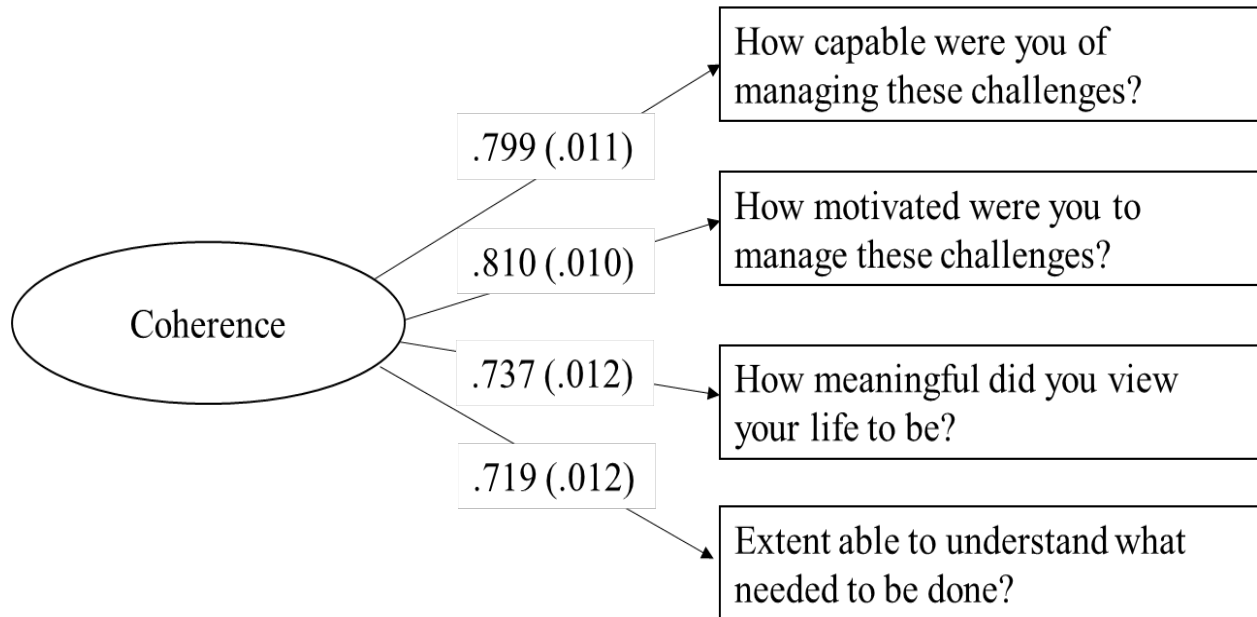
Figure 1. CFA measurement model of coherence

Note. CFA = confirmatory factor analysis; fit indices: $\chi^2(2)$ = 42.294, RMSEA = .091, CFI/TLI = .995/.986, SRMR = .019, and WRMR = 1.750; reported values: standardized coefficients (standard errors).
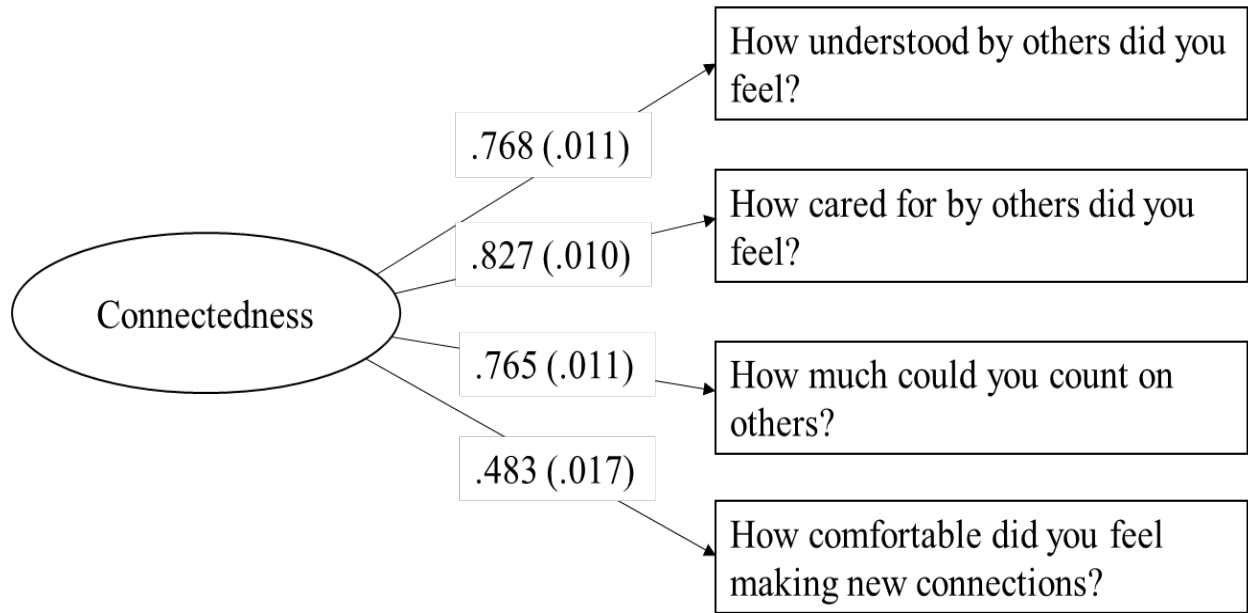
Figure 2. CFA measurement model of connectedness

Note. CFA = confirmatory factor analysis; fit indices: $\chi^2 (2) = 58.645$, RMSEA = .108, CFI/TLI = .995/.984, SRMR = .023, and WRMR = 1.884; reported values: standardized coefficients (standard errors).
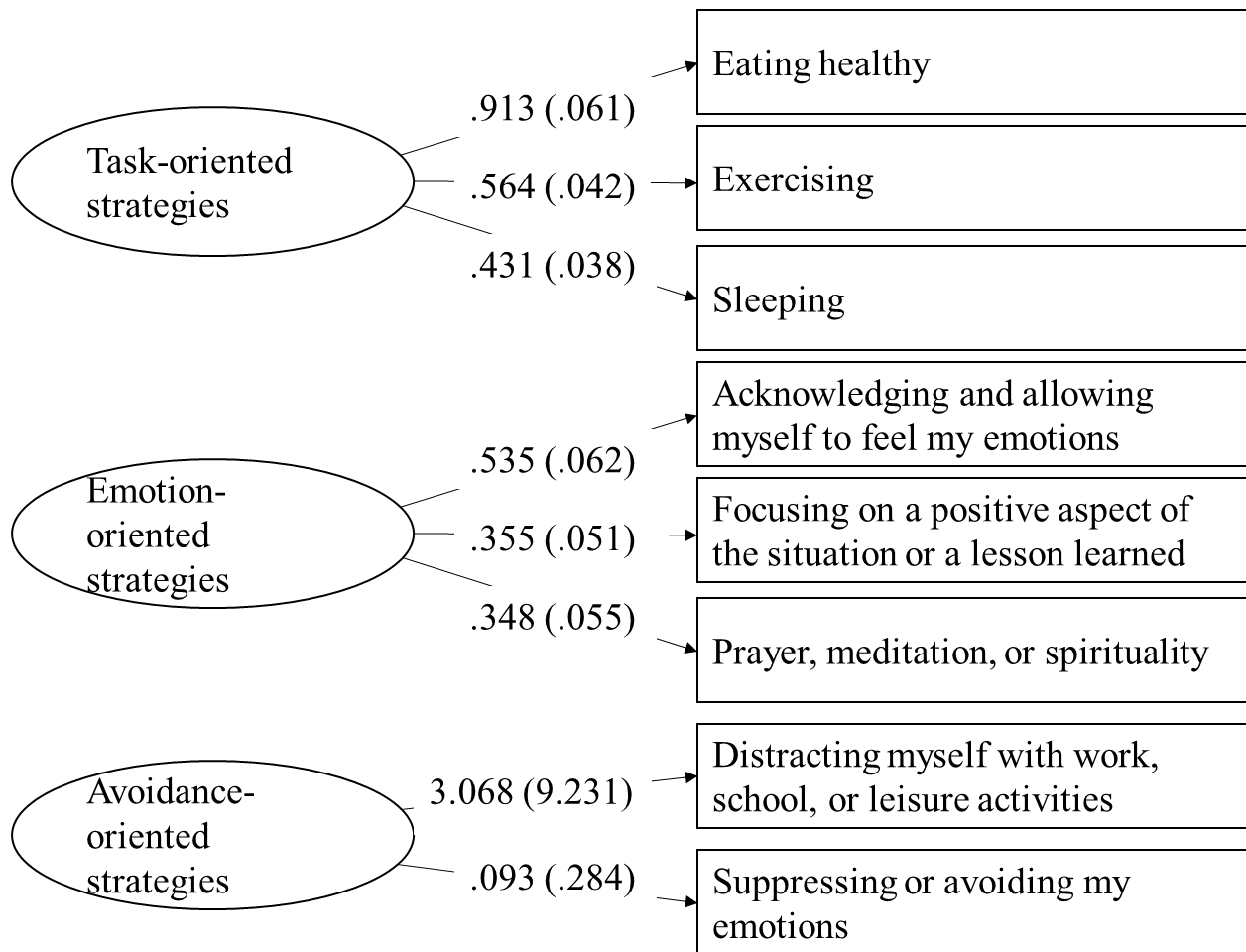
Figure 3. CFA measurement model of coping strategies

Note. CFA = confirmatory factor analysis; fit indices: χ^2 (17) = 64.509, RMSEA = .033, CFI/TLI = .928/.882, SRMR = .045, and WRMR = 1.392; reported values: standardized coefficients (standard errors).
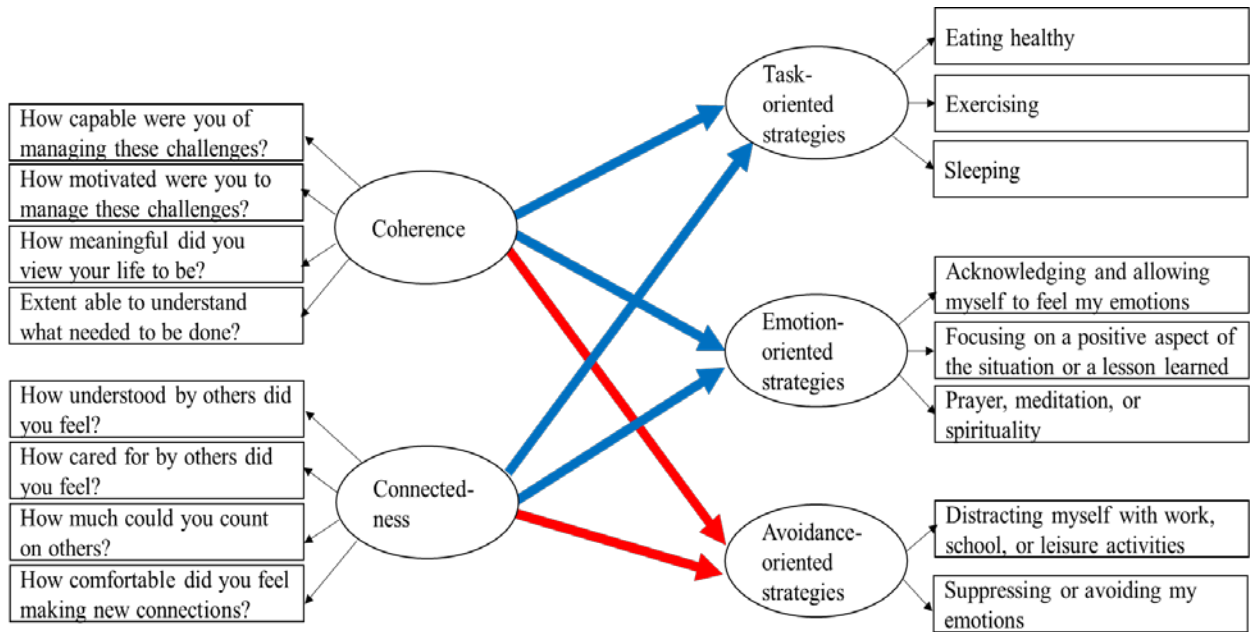
Figure 4. Hypothesized final model

Note. Moderator = gender; control variables = age, race, and status (i.e., undergraduate and graduate); blue line = positive path, red line = negative path, black line = insignificant path, bolded line = path moderated by gender.
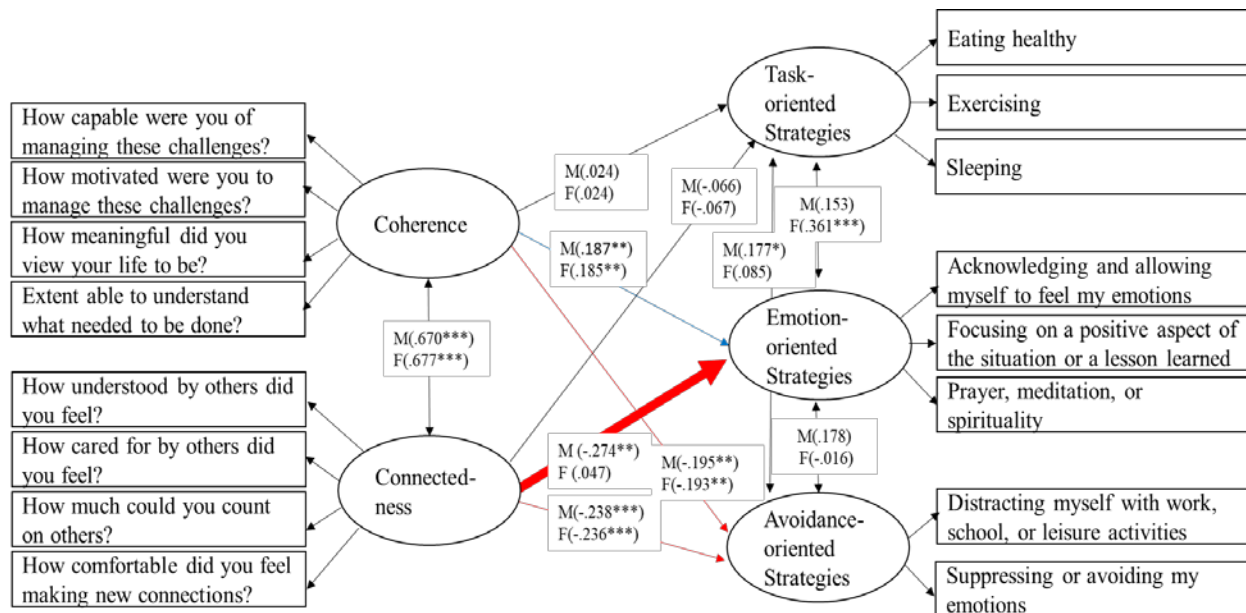
Figure 5. Final SEM model with moderating effects indicated

Note. Full reporting of standardized and unstandardized estimates with standard errors reported

in Table 7; only standardized estimates are reported in this figure; control variables = age, race,

and status (i.e., undergraduate and graduate); moderator = gender; M = men, F = women; blue

line = positive path, red line = negative path, black line = insignificant path, bolded line = path

moderated by gender; significant paths include the paths from coherence to emotion-oriented

strategies and avoidance-oriented strategies for both genders, the path from connectedness to

emotion-oriented strategies for female, and the paths from connectedness to avoidance-oriented

strategies for both genders; fit indices: χ^2 (290) = 695.321, p < .001, RMSEA = 0.035, CFI/ TLI

= 0.917/0.904, WRMR = 1.960.

*p < .05, **p < .01, ***p < .001.