

Stress, Coping, and Psychological Well-Being:

Comparison among American and Asian International Graduate Students from Taiwan, China,
and South Korea

BY

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Dedication

To my dear father, mother, brother, and husband.

As I recall, the first time I thought of going to a graduate school and obtaining a PhD in psychology was when I was 12th grade. When I shared this vision and dream with you, parents, father you said to me, “people with PhDs can write and publish. Can you write?” I paused in silence. “Gees, I don’t know,” I thought to myself. Suddenly, mother you jumped into our conversation and responded, “Tina can certainly write when she gets her Ph.D.” Fourteen years later, this conversation still rings in my ears. It seems like yesterday that we were having this conversation. I would like to dedicate my doctoral degree and my research work to my parents Der-Her Yang and Hsin-Chin Chen Yang. Thank you both for your unconditional love, continuous support, and your trust in me. Thank you for allowing me to choose a major that I love and am passionate about. Thank you for believing in me that I will find my own path. Thank you for helping me define my own success—enjoy what I do, and do it to the best of my ability. Your love is like a safety harbor to me. Thank you for letting me know that I always have a home to go back to. I love you, mom and dad!

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Abstract

The purpose of this study was to examine the relationships of stress, coping, and psychological well-being among American graduate students and Asian international graduate students from Taiwan, China, and Korea. The sample consisted of 131 American graduate students, and 77 Taiwanese, 53 Chinese, and 50 Korean international graduate students from 90 universities in the US. Pearson correlation coefficients, factorial ANOVAs, and multiple regression analyses were conducted for investigation. Results of the current research were consistent with previous research suggesting that Asian international graduate students were not a homogeneous group in experiencing stress, coping, and psychological well-being. In sum, three groups of Asian international graduate students experienced greater stress than American graduate students. All graduate students with greater academic, environmental, and family stress were associated with maladaptive coping skills. All graduate students using more adaptive coping skills were associated with greater psychological well-being. In addition, doctoral students, no matter the culture, reported having less overall stress and greater psychological well-being. Although Taiwanese international graduate students tended to use maladaptive coping skills, their psychological well-being was still great. Perceived English skills remained to be a strong predictor in stress, coping, and psychological well-being especially in Chinese and Korean international students.

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CHAPTER 1: Introduction

In university admissions, an international student is defined as “a person who is not a citizen, national, or permanent resident of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely” (Brown, 2005).

According to *Open Doors* report, America hosted more than half a million international students in the 2007-08 academic year. Among international students studying in the United States, Asian international students remain the largest international student body, which accounts for 61% of total international enrollments in the U.S. From the leading places of origin, India ranked first place with 94,563 students, China ranked second place (81,127), South Korea ranked third (69,124), Japan ranked fourth (33,974), Canada ranked fifth (29,051) and Taiwan ranked sixth with 29,001 students. In addition, within the international student group, those who enrolled at graduate levels in the 2007-08 academic year was estimated to be 276,842, which constituted 48.8% of the total international student population (Institute of International Education, 2008).

Attending graduate schools can be stressful as students undergo the process of adapting to new social and educational environments. For international students, graduate school life in the U.S. may be even more stressful because of the added strain of different culture values, language, and high self-expectations in addition to academic demands and lack of social support systems (Constantine, Anderson, Berkel, Caldwell, & Utsey, 2005;

Hyun, Quinn, Madon, & Lustig, 2007; Mori, 2000). As a result, there is a greater probability of adjustment problems, physical complaints, and psychological distress in students from foreign countries (Constantine & Okazaki, 2004; Kearney, Draper, & Baron, 2005; Swagler & Ellis, 2003).

Coping has been a central focus in vast amount of studies when it comes to learning about stress (Carver, 1997; Holahan & Moos, 1987; Lazarus & Folkman, 1984; Matheny, Aycock, Curlette, & Junker, 1993; Somerfield & McCrae, 2000). Numerous studies (Haines & Williams, 1997; Lazarus & Folkman, 1984; Nelson, Dell'Oliver, Koch, & Buckler, 2001) suggest that although a combination of coping strategies may be used to deal with any one stressor, coping strategies that are adaptive tend to be more problem-focused (e.g., planning, active coping, seeking social support) and less emotion-focused (e.g., venting emotions or disengagement).

Over the decades, international students at undergraduate levels have been studied extensively, but limited studies have been done with those at graduate levels. In one of the few studies that compared international and domestic graduate students' mental health need, Hyun, Quinn, Madon, and Lustig (2007) found that students from foreign countries experienced more stress that affected their well-being, but conveyed less willingness to use mental services than their domestic peers. Nonetheless, the international graduate population as a whole still expresses pressing needs for counseling services especially in stress

management, career, individual, group, or marriage and family therapies (Couch, & Henry, 1997; Polson, 2003; Stecker, 2004).

Statement of the Problem

Despite a growing body of research examining international students' adaptation to the U.S. (Edwards, Hershberger, Russell, & Market, 2001; Gall, Evans, & Bellerose, 2000; Gloria & Kurpius, 2001), very few studies have focused on comparing among American graduate students and subgroups of Asian international graduate students or the association between their stress, coping, and psychological well-being. Research has suggested that international graduate students of Asian origin express more stress but use less mental health services than their domestic peers or European international counterparts (Hyun, Quinn, Madon, & Lustig, 2007; Mori, 2000). As a result, physical illnesses, psychological distress, and adjustment problems may become a concern if stress is prolonged for a period of time (Constantine & Okazaki, 2004; Kearney, Draper, & Baron, 2005). In order for universities to effectively provide services to international graduate students from diverse countries, there is a need for counseling psychologists and higher education administrators to understand how different groups of international graduate students experience stress and how they use coping strategies.

When Asian international students are being studied, they are often treated as a homogenous group despite their country of origin. Differences among groups of Asian

international students were often overlooked. Heggins and Jackson (2003) suggested that the failure of examining differences among subgroups of Asian international students can lead to overgeneralized faulty conclusions.

As research has pointed out, international students from different regions possess diverse cultural values and traditions, which may influence how they deal with stress (Chun, Moos, & Cronkite, 2006; Constantine, Okazaki, & Utsey, 2004). Although Taiwanese, Chinese, and South Korean Asian international students are from collectivistic cultures that value interdependence and strong interpersonal relationships (Constantine, Okazaki, & Utsey, 2004), each distinct culture may influence their perceptions of stress and coping. In a study which examined stress among college students in China, Japan, and Korea (Kim, Won, Liu, Liu, & Kitanishi, 1997), researchers found that Chinese students experienced a greater number of stressors and showed higher level of stress than their Japanese and Korean counterparts, whereas Korean students were the most active when coping with stress but they reported most physical symptoms in reaction to the stressors. From the study, Kim and colleagues' (1997) concluded that stress and coping differ among members of different cultural backgrounds. However, because their study was done with college students in their respective countries, it is unclear how stress and coping may be different when they study internationally. Thus, the examination of stress and coping among subgroups of Asian international graduate students and comparison with domestic graduate students will be the

central focus of the present study. From the current study, counseling psychologists and higher education administrators in the U.S. can benefit from knowing important differences between American students and subgroups of Asian students.

A unique aspect of the present study is that subgroups of Asian international graduate students from Taiwan, China, and South Korea are being studied. The focus of present study has twofold: one is to explore the differences of stress and coping among international graduate students from Asian countries; the other is to compare those among American graduate students and three subgroups of Asian international students. In addition, factors (e.g., length of stay in the US, English proficiency, sex) that may affect the stress and coping process among Asian international student population are also investigated.

Purpose of the Study

The aim of the current study is to investigate differences of stress, coping, and psychological well-being among American and Taiwanese, Chinese, and Korean international graduate students. Other demographic variables such as sex, length of stay in the US, and English proficiency are also examined to assess how they relate to the stress and coping process. This comparative study among American graduate students and three groups of Asian international graduate peers will provide better understandings in how each group perceives and copes with stress. The explorations of these variables will allow counseling psychologists and higher education administrators to apply more culturally sensitive,

effective, and inclusive counseling services to both domestic graduate students and international graduate students from diverse cultural backgrounds.

Research Questions

The research questions of this dissertation are as follows:

- 1) What are the relationships among stress, coping, and psychological well-being in American graduate students and in Taiwanese, Chinese, and South Korean international graduate students?
- 2) Are there differences among American, Taiwanese, Chinese, and South Korean international graduate students in stress, coping, and psychological well-being?
- 3) Are there sex differences in stress, coping, and psychological well-being?
- 4) Do culture and sex interact to affect stress, coping and psychological well-being?
- 5) What variables show the strongest relationships among stress, coping, and psychological well-being for American graduate students and for international graduate students from Taiwan, China, and South Korea?

CHAPTER 2: Literature Review

In the following chapter, literature concerning stress and coping in relation to psychological well-being will be reviewed followed by research framework that the present study is based on. In addition, demographic variables will be discussed. First, different perspectives of stress are presented. Second, a brief discussion of stress and psychological well-being is focused on graduate students and international students, respectively. Third, coping strategies in relation to psychological well-being and to ethnic group differences are discussed. Next, research framework of stress and coping model for the current study is introduced. Last but not least, demographic variables in relation to stress and coping research are discussed.

Stress

Different Perspectives of Stress

Since the late 1970s, stress has been extensively studied in biological and sociological aspects, and as interplay of the person and the environment. According to Hans Selye (1976), stress is viewed as a biological or physical response to any environmental demand which can cause what he called the General Adaptation Syndrome, a physical condition developed after exposure to a stressor for a prolonged period of time. From a sociological perspective, Pearlin and Schooler (1978) regard stress as external life-strains that impact individuals' emotional state. The most common perspective of stress model; the transactional model, developed by

Lazarus and Folkman (1984), asserts that stress is “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p.19).

Graduate Students

Stress. As students enter graduate schools, they may undergo a tremendous amount of stress as they face a new chapter in life and have to adapt to new school and social environments. Whereas some students continue their graduate studies right after undergraduate schools, others have to readjust their work status to student roles (Polson, 2003), and still others strive to balance family obligations and school demands (Offstein, Larson, McNeill, & Mwale, 2004). Because of the transitions graduate students go through, they may encounter conflicts of multiple roles, different patterns of advisory relationships, inadequate social support or financial constraints, in addition to academic stressors (Goplerud, 1980; Koeske & Koeske, 1991; Offstein et al., 2004; Scheinkman, 1988; Stewart, 1995; Toews, Lockyer, Dobson, & Brownell, 1993). To better understand what graduate students experience, Offstein and colleagues’ (2004) in-depth semi-structured interviews revealed that all participating graduate students reported stress with different degrees of intensity.

“Demanding,” “difficult,” “stressful,” “pressed,” and “effort intensive” were some of the ways participants used to describe their lives and workload. These graduate students also experienced various sources of internal conflict resulting from school and nonschool related

responsibilities (Offstein et al., 2004).

Stress and psychological well-being. Although some conflicts will come and go as graduate students move on to the next stage of their student life (Stewart, 1995), other stresses such as financial concerns and lack of social support may persist and be associated with poor psychological health (Hodgson & Simoni, 1995). Stressors such as these have seriously impacted their well-beings. To examine stress and well-being of graduate students, Stecker (2004) conducted a survey to a total of 644 graduate and professional students to assess academic, health, psychosocial, and external stress as well as coping skills used to deal with stress. The results showed that approximately 35% of graduate students, regardless of school, ethnicity or gender, reported having depressive symptoms. About 25% of students sought mental health services on campus while another 19% of students indicated willingness to seek such services did not do so for various reasons, including time constraints, confidentiality concerns, embarrassment, or the long waiting list. As a way of dealing with stress, 80% graduate students reported usage of alcohol and 19% used illegal drugs.

Although numerous studies have examined stress in graduate population (Fan & Wanous, 2008; Mallinckrodt & Leong, 1992; Perrucci & Hu, 1995), few studies include an instrument especially designed to assess graduate students' stress. Commonly used scales measuring stress such as Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) and Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) may not reflect the unique

patterns of stress graduate students experience. In the present study, the Graduate Stress Inventory (GSI; Rocha-Singh, 1994) is used to assess perceptions of academic climate, social integration, and graduate student concerns. The inventory will allow researchers to better understand how graduate students perceive stress in various aspects of their lives.

International Students and Stress

Academic stress, commonly experienced by domestic students, is also a central concern to the international student population (Chen, 1999; Wan et al., 1992). According to Misra, Crist, and Burant (2003), international students at both undergraduate and graduate levels reported feeling most stress in academic situations, which typically originated from academic pressure and self-imposed distress. In addition to academic stress, international students may experience additional constraints other than stressors shared among the student population as a whole. Some unique stresses include cultural adjustment, language barriers, and lack of social support (Hartnett & Katz, 1977; Stewart, 1995; Swagler & Ellis, 2003). Of the unique stresses encountered, the level of self-perceived English proficiency has been one of the strongest predictors of the amount of stress felt by international students in academic, social, and cultural adjustments (Wan et al., 1992; White, Brown, & Suddick, 1983; Yeh & Inose, 2003). As international students have identified, English fluency remains their greatest concern when studying in the U.S. (Swagler & Ellis, 2003). Lower English proficiency is not only associated with greater stress and anxiety, but also with more psychological problems

(Aubrey, 1991). How well international students can communicate in English influences how they interact with others. The social networks international students have built can make a difference in their feeling isolated or well supported. International students who receive stronger social support report less stressful than those with limited social networks (Chen, 1999; Mallinckrodt & Leong, 1992; Misra, Crist, & Burant, 2003; Wan et al., 1992).

International graduate students and stress. In American universities, international graduate students, constituting 48.8% of the total international student population (Institute of International Education, 2008), have attracted growing attention and research in recent years. Given the additional constraints international graduate students experience, one may speculate more stress reported among foreign students than in domestic peers. Surprisingly, according to Hyun and colleagues (2007), similar rate of emotional or stress related problems that affected their well-being has been found among international graduate students (44%) and domestic peers (46%). Although both groups did not differ much in the prevalence of stress-related problems, international graduate students conveyed less willingness (33%) than domestic counterparts (56%) to seek counseling services. However, the validity and generalizability of the result is limited by the fact that stress is measured by one single dichotomous variable that asked the participants “in the past 12 months, have you had an emotional or stress-related problem that significantly affected your well-being and/or academic performance?” (p.111.) Thus, it is worth exploring more in depth in stress among

different groups of students.

To investigate stress in academic settings, Wan, Chapman, and Biggs (1992) administered the Survey of Academic Experiences of International Students (SAEIS) to 689 international graduate students in examining their perceptions of stress in selected academic situations, coping resources, role skills, social support, and culture distance. Key findings showed that students pursuing more advanced degrees reported feeling less stressed academically than less advanced degrees (Hull, 1978; Melby & Wolf, 1961). In other words, students who seek Ph.D. degrees reported less academic stressors than those who seek master or professional degrees. Another interesting finding was that foreign students, especially those from Asian countries, whose original country's educational system was more different both in structure and content than that of the U.S. perceived having more academic stress. This finding is not surprising given that Asian students who are used to rote learning styles in their respective countries may become anxious when they learned that American class requirements often include discussions and presentations, which involve a different set of skills (Andrade, 2006; Chen, 1999).

Asian international students and stress. Asian international students, as suggested previously, may experience more stress when adjusting to the U.S. educational environment (Wan, Chapman, & Biggs, 1992). Contrary to the U.S. educational system, which is less structured and more relaxed, Asian universities have more rigidity in classroom regulations,

learning environment, and teacher-student interactions. Respect and order are emphasized in ways that teacher authority is not to be challenged in class, students' eating and drinking behaviors are regarded as disrespectful to the teacher, or students call teachers by their titles followed by their last names to show respect (Chen, 1999). These gestures, which are considered appropriate in their original countries, often are challenged and create stress when they begin their student life in the U.S.

Cross-culture comparisons. In critical review of stress literature among Asian international students, limited research has been found to compare subgroups of Asian students at graduate levels with American peers in one single study. However, because international students at undergraduate and graduate levels may share some common stressors, it is worth to expand literature review to include relevant research that directs towards Asian international students at undergraduate levels in the following paragraph.

Comparisons of stress among subgroups of Asians undergraduate students are more commonly conducted in participants' respective countries. In one study conducted by Sinha, Willson, and Watson (2000) in India and Canada, they found that, contrary to their hypothesis, Indian students reported less stress than the Canadian students. In China, Japan, and Korea, college students were also compared in their level of stress and ways of coping (Kim, Won, Liu, Liu, & Kitanishi, 1997). Stress Questionnaire Form for College Students (SQFCS; Won, Lee, & Kim, 1989) was administered in participants' native languages. A total of six hundred

college sophomore students from top ranking universities in Korea, China, and Japan were selected for the study. Findings showed that Chinese students reported more stress in frequency and severity than their Japanese and Korean peers. In addition, Korean students reported having most physical symptoms encountering with stress although they used most active coping strategies. However, it is unclear how different ethnic groups of students at graduate levels perceive stress when they study in the U.S. The present study will attempt to answer this question.

Coping

Coping is defined as a psychological process in which an individual attempts to manage external or internal demands (Lazarus & Folkman, 1984). Traditionally, the concept of coping has derived from two theoretical orientations: animal experimentation and psychoanalytic ego psychology. Animals rely on their survival instincts to respond to their environment. In this line of research, coping is viewed as learned behavioral responses that regulate unpleasant environmental conditions to lower psychophysiological disturbance. However, because the animal model research has focused largely on avoidance and escape behavior as well as drive and arousal, it has been criticized by its simplicity and lack of high-functioning examination when it comes to learning human coping. With the complexity of human functioning, cognition and emotions are to be considered in the coping process. On the other hand, psychoanalytic ego psychology model places more emphasis on cognition and less on

behaviors. Coping is defined as thoughts and actions that are flexible and realistic so that problems can be resolved and thus stress can be reduced. The main difference between the animal model and the psychoanalytic ego psychology model is that the latter taking into account the individual perceptions of the person and environment relationships (Lazarus & Folkman, 1984).

Coping includes a wide range of strategies such as problem solving, facing the problem with aggression, avoid facing the problem, seek social support, and reappraise the situation (Sinha et al., 2000). In literature, coping strategies are commonly divided into two categories by function: problem-focused and emotion-focused. Problem-focused coping involves action, which directs at managing problems that caused distress. Conversely, the purpose of emotion-focused coping is to regulate emotional response to relieve stress. Examples of emotion-focused coping include avoidance, distancing, and selective attention (Lazarus & Folkman, 1984). Coping styles that are problem-focused are considered more effective and adaptive, and are correlated with fewer psychological symptoms and a healthier psychological well-being (Holahan & Moos, 1987). On the other hand, emotion-focused coping styles are associated with depression, phobic anxiety, and somatization, and a major predictor of psychopathology (Holahan & Moos, 1987; Watson & Sinha, 2008).

As stated above, psychological well-being has been linked to coping strategies. For example, Park and Adler (2003) found that psychological and physical health of medical

students declined after their first year of training. Specifically, escape avoidance coping style was associated with lower psychological well-being. On the other hand, adaptive coping strategies such as positive reappraisal and planned problem solving were only slightly associated with higher psychological well-being (Park & Adler, 2003). In an examination of cultural differences in coping and psychological well-being among Asian American and Caucasian American college students, Chang (1996) found that compared with Caucasian Americans, Asian Americans used more problem avoidance and social withdrawal coping strategies. In psychological well-being, Asian Americans were presented with more depressive and psychological health problems, but not physical symptoms, compared to Caucasian Americans. Despite literature examining coping and psychological well-being, little is known about the relationship of these variables among different groups of Asian students especially at graduate levels.

Cross-Culture Comparisons

Individuals from diverse cultural backgrounds may have different preferences in coping styles. For example, Asian international students prefer seeking social support from family, friends, and religious leaders rather than seeking help from mental health professionals (Heggins & Jackson, 2003). In a cross-cultural comparison of college students in India and in Canada, Sinha et al. (2000) found that while both groups use similar rate of problem-focused coping, Indian students showed higher use of emotion-coping strategies that encompassed

confrontive coping, distancing, positive reappraisal, and social support. However, no differences have been found in emotion-focused strategies directed towards self-controlling, escape-avoidance, and accepting responsibility. In another cross-cultural comparisons in Chinese, Japanese, and Korean college students, Kim et al., (1997) found that three ethnic groups adopted coping differently in dealing with stress. Researchers in this study categorized coping into active and passive coping styles. Active coping involves actions that directly deal with the problem, including active controlling the problem, confrontation, resolution, and help-seeking, versus passive coping that consists of suppression, projection, escape, and fantasy formation (Kim et al., 1997). Results showed that among the three groups, Chinese students least used active coping and were also low in passive coping. Japanese students used more active coping than Chinese students, but they were also low in passive coping. Korean students were among the highest both in active and passive coping. However, when taking stress and physical health into consideration, interesting results have been found. Although Korean students indicated most use of active and passive coping strategies to deal with their mild stress compared with other two groups, they had most serious physical symptoms. Japanese students, while engaging less in active and passive coping strategies, experienced less physical symptoms than Koreans. Conversely, although Chinese students reported having highest number of stressors with highest level of stress, they reported only mild physical symptoms. Their coping strategies, especially passive coping, seemed to

successfully regulate their physical health. In another study, Misra and Castillo (2004), in studying academic stress among American and international students at college and graduate levels, found that American students reported using more behavioral coping strategies, such as crying, smoking, and self-abuse, while international students used more cognitive strategies, such as analyzing problems and using effective strategies. Cross's (1995) research that examined stress and coping among East Asian and American graduate students found that East Asian graduate students scored higher on interdependent self-construal than their American counterparts and tended to have higher stress and used more indirect coping styles that dealt with changing of self rather than changing of the situation.

In cross-cultural studies presented above, researchers concluded that coping styles employed are associated with ethnic backgrounds (Kim et al., 1997; Misra & Castillo, 2004). Although research has established that coping is associated with psychological well-being (Lazarus & Folkman, 1984), very few studies have attempted to study a broader range of coping strategies and examine how different ethnic groups of graduate students cope with stress. In the current study, these factors will be investigated.

Research Framework

The current study is based on the framework of Lazarus and Folkman's transactional model of stress and coping. Different from traditional stress models which view stress in a one-way cause-and-effect or stimulus-response direction, the transactional model examines

stress in a dynamic and bidirectional approach that focuses on the interplay between person and environment variables. In more detail, the transactional model of stress and coping is a process described in the following steps: a) an individual encounters an environmental demand; b) the person evaluates the condition in a process called cognitive appraisal, to determine if and to what extent the situation surpasses the person's available resources to cope; c) feelings of threat, loss, or challenge may occur when the condition is deemed stressful; d) the person reappraises the situation to evaluate what coping resources are available and possible consequences of coping strategies employed; and e) the interplay between environmental demands and appraisal and reappraisal of coping strategies shapes the person's intensity of stress and the quality of well-being (Lazarus & Folkman, 1984).

Demographic Variables

Several demographic variables are worth exploring when studying group differences among stress, coping, and psychological well-being. In the present study, demographic variables include sex, age, culture, length of stay in the U.S., perceived English skills, type of degree pursuing, marital status, and number of children.

Studies have yielded inconsistent findings in sex differences, although several studies suggested that sex differences do exist in stress and preferred coping styles. In general, women tend to experience greater stress (Stecker, 2004), which is often associated with academics and use of venting emotions as their coping strategy (Hodgson & Simoni, 1995;

Hyun, Quinn, Madon, & Lustig, 2006; Smith & Renk, 2007). This type of emotional-focused coping strategy is associated with lower levels of psychological well-being (Watson & Sinha, 2008). When female students who have positive relationships with their advisors as a form of social support, they are more likely to use counseling services (Hyan et al., 2006).

Nonetheless, the use of emotional-focused coping strategies does not seem to shy away their success. In a study (Nelson et al., 2001) conducted at a northwest American university clinical psychology program, even though women graduate students reported greater stress in scholastic coursework and used more emotion-focused coping strategies, they reported to be more successful academically. In another study conducted by Misra and Castillo (2004), both American and international female college students coped with academic stressors more behaviorally and physiologically than their male counterparts. However, when Hamilton and Fagot (1988) hypothesized that men use expressive coping strategies more often while women engage more frequently in emotional coping, their findings yielded no sex difference. In recent years, the prevalence of mental disturbances has increased in both sexes; however, females especially between 18-64 years old still suffer from greater psychological distress than males (CDC, 2007). Although several studies have noted sex differences in stress, coping, and psychological well-being, differences between male and female graduate students of different ethnic groups are yet to be explored; therefore, this factor will be included in the present study.

Folkman, Lazarus, Pimley, and Novacek (1987) suggested that there are age differences in stress and coping processes. Two groups of subjects were assessed by age. The younger group, which the mean age was approximately 40 years old, reported more stress in finances, work, home, personal life, and family and friends while the older group of a mean age of 68 expressed more stress in environmental, health, and social issues. When asked both groups to appraise their stressful situations, the younger group reported to cope better. However, college student age groups were not included in this study. Therefore, more needs to be known about younger people.

Research Hypotheses

There are five major research questions in the study. First, what are the relationships among stress, coping, and psychological well-being in American graduate students and three cultural groups of Asian international students? Second, are there differences among Americans and three cultural groups of Asian international students in stress, coping, and psychological well-being? Third, what are sex differences with regard to stress, coping, and psychological well-being? Fourth, how are culture and sex related to stress, coping, and psychological well-being? Last, what variables show the strongest relationships among stress, coping, and psychological well-being among American and three groups of Asian international graduate students?

The hypotheses are as follows:

Hypothesis 1: There will be no relationships among the variables of stress, coping, and psychological well-being in American and three groups of Asian international graduate students.

H1a: There will be no relationships among stress, coping, and psychological well-being in all graduate students.

H1b: There will be no relationships among stress, coping, and psychological well-being in American graduate students.

H1c: There will be no relationships among stress, coping, and psychological well-being in Taiwanese international graduate students.

H1d: There will be no relationships among stress, coping, and psychological well-being in Chinese international graduate students.

H1e: There will be no relationships among stress, coping, and psychological well-being in South Korean international graduate students.

Hypothesis 2: There will be no differences among the four groups in stress, coping, and psychological well-being.

H2a: There will be no differences among American, Taiwanese, Chinese, and South Korean international graduate students in amount of stress.

H2b: There will be no differences among American, Taiwanese, Chinese, and South Korean international graduate students in type of coping.

H2c: There will be no differences among American, Taiwanese, Chinese, and South Korean international graduate students in level of psychological well-being.

Hypothesis 3: There will be no differences between males and females overall in stress, coping, and psychological well-being.

H3a: There will be no differences between male and female for stress.

H3b: There will be no differences between male and female for coping.

H3c: There will be no differences between male and female for psychological well-being.

Hypothesis 4: There will be no interaction between sex and culture on stress, coping, and psychological well-being

H4a: The effect of sex on stress will not depend on culture.

H4b: The effect of sex on coping will not depend on culture.

H4c: The effect of sex on psychological well-being will not depend on culture.

Hypothesis 5: Demographic variables will not be related to stress, coping, and psychological well-being among the four groups or combination of groups.

H5a: There will be no unique effects of culture, sex, age, type of degree pursuing, marital status, and number of children on stress among all students or four groups of students, respectively.

H5b: There will be no unique effects of culture, sex, age, type of degree pursuing, marital

status, and number of children on coping among all students or four groups of students, respectively.

H5c: There will be no unique effects of culture, sex, age, type of degree pursuing, marital status, and number of children on psychological well-being among all students or four groups of students, respectively.

CHAPTER 3: Methodology

In the following section, information regarding participants, data collection procedures, and instruments used in the study were presented.

Participants

The original dataset consisted of 421 participants; 110 (26.2%) participants were excluded because they were not international students (i.e., Taiwanese American), identified themselves as other ethnic groups (i.e., Jamaican, Cuban, East European, Thai, Turkish, Indian), had left at least one questionnaire (i.e., GSI-R, Brief COPE, GHQ-12) completely blank, or their data were either outliers. Five missing scores were replaced with the average score for the corresponding variable, and then the cases were included in the analysis.

The sample of the study consisted of 311 (73.8%) domestic American graduate students and international students from Taiwan, China, and Korea. Both males and females over 18 years old completed the survey. American graduate students included those of any race/ethnicity who have American citizenship or permanent US residency and spend most of their time living in the U.S. Taiwanese, Chinese, and South Korean international students are individuals who hold F1 or other visas and spend most of the time in their respective countries. Both masters and doctoral levels of graduate students were included in the study. Convenience sampling was used in that students were invited to participate via student organization and departmental listservs from 90 universities across the U.S. continent. This

cross-campus investigation would allow the sample to be more representative and generalized than the sample gathered from a single school.

Procedures

The study first gained approval from its Institutional Review Board from the University of Kansas. Invitations for a web-based survey were sent out electronically to departmental LISTSERVS, professional student organizations (e.g., Asian American Psychology Association), personal contacts, and international student organizations including Taiwanese Student Associations, Chinese Student Associations, and Korean Student Associations. All measures, including a brief description of the study and statement of institutional review board approval were included and created on an online survey software tool called Survey Monkey. Participants were given an informed consent, a demographic form, and three questionnaires which contain the Graduate Stress Inventory-Revised, the Brief COPE, and the General Health Questionnaire-12. In addition, Taiwanese, Chinese, and South Korean international graduate students were asked to answer the Perceived English Skills inventory. American graduate students, who are all native English speakers, were not asked to take this inventory, as it is assumed that they will attain close to the ceiling on this instrument. The estimated completion time for the entire survey was 15-20 minutes. No known risk was involved in filling out the survey. In addition, to increase participation rate, nine Amazon.com gift cards in the amount of two \$50s, two \$25s, and five \$10s were provided as incentives. To

be compliant with Kansas Statute, the researcher of the study made known to the participants that drawings of prizes were not contingent upon their completion.

Instruments

In the following section, the descriptions of instruments used in the study are presented.

The instruments include: 1) Graduate Stress Inventory-Revised (GSI-R), 2) Brief COPE, 3) General Health Questionnaire (GHQ-12), 4) Perceived English Skills, and 5) Demographic Questionnaire. All the instruments are included in the appendices.

Graduate Stress Inventory-Revised

The Graduate Stress Inventory-Revised (GSI-R; Rocha-Singh, 1994) is a 21-item self-report instrument that measures graduate students' levels of perceived stress in academic responsibilities, the university environment, and financial and familial responsibilities. The three areas assessed are categorized into three subscales: academic stress (items 1, 3, 7, 11, 12, 15, 20, 21), environmental stress (items 2, 6, 8, 9, 10, 13, 14, 18), and family/monetary stress (items 4, 5, 16, 17, 19). Sample questions include "Handling the academic workload" and "Paying monthly expenses." Participants are asked to rate on a 7-point Likert scale ranging from "Not at all stressful" (1) to "Extremely stressful" (7) the degree of stress they perceived in various situations encountered in graduate school. The total score is added from three subscales, and yields an overall score from 21 to a maximum of 147. High scores reflect greater stress. The GSI-R takes approximately 5 minutes to complete.

Moderate to high reliability and validity has been demonstrated for most of the subscales. In a study that surveyed first-year doctoral students at two universities (Rocha-Singh, 1994), coefficient alphas for the subscales were .74 (Academic Stress), .68 (Family/Monetary Stress), and .30 (Environmental Stress). In another Rocha-Singh's (1994) study, test-retest reliability yielded coefficient alphas of .80 (Environmental Stress), .85 (Academic Stress), and .85 (Family/Monetary Stress). Concurrent validity was established with Spielberger's Trait Anxiety Scale with an alpha of .93.

Brief COPE

Based on the concepts of coping from Lazarus and Folkman's (1984) model, the Brief COPE, abbreviated from the original 60-item COPE scale, is a 28-item self-administered inventory containing 14 subscales of two items each that aims to assess how individuals cope with stress in daily life. Unlike other coping measures, the Brief COPE encompasses a broader range of coping strategies. The 14 subscales include: active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, using instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. Some sample questions include "I take action to try to make the situation better," "I use alcohol or other drugs to help me get through it," and "I make jokes about it." Each item asked participants to rate on a 5-point Likert scale ranging from 1 (*I don't do this at all*) to "5" (*I do this a lot*). In a sample of Hurricane Andrew survivors, the Cronbach's alphas of

the inventory reported to range from .50 (venting) to .90 (substance use). Except subscales of Venting, Denial, and Acceptance, the reliabilities of all other subscales exceeded values of .60 (Carver, 1997). The validity is yet to be documented.

The Brief COPE generates 14 sub-scores from the scale with no “overall” coping index score. When Carver (1997) first developed the scale, the usage was to examine relationships between individual sub-scores and other variables. Therefore, the scale developer did not advise a particular way of creating a main coping style for any given person. However, since the birth of the Brief COPE, numerous studies (Meyer, 2001; Vosvick, Gore-Felton, Koopman, Thoresen, Krumboltz, & Spiegel, 2001) have aggregated the subscales into two groups of coping styles (e.g., positive vs negative, adaptive vs maladaptive, or problem-focused vs emotional-focused, or active vs avoidant). For the current study, adaptive and maladaptive coping styles are used. Adaptive coping include active coping, planning, positive reframing, acceptance, humor, religion, using emotional support, and using instrumental support while maladaptive coping consists of self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. It takes about 5 minutes to complete the Brief COPE.

General Health Questionnaire (GHQ-12)

The General Health Questionnaire-12 (GHQ-12) is a short form of the original 60-item General Health Questionnaire. The GHQ-12 is a 12 item self-administered scale that

measures an individual's mental health. Each item is assessed using a 4-point Likert scale ranged from 0 (less than usual) to 3 (much more than usual), which yield a total score of 0 to 36. Items 1, 3, 4, 7, 8, and 12 are reversed scores. The questionnaire asks participants to rate a particular symptom or behavior that has occurred recently. For example, a sample question include, "Have you recently lost much sleep over worry?" Lower composite scores suggest greater psychological well-being. A total score of more than 15 indicates stress where as a total score of more than 20 suggests severe problems and psychological distress. It takes about 3 minutes to complete the GHQ-12. The Cronbach's alphas ranged from .82 to .90 in three separate studies (Banks, Clegg, Jackson, Kemp, Stafford, & Wall, 1980). The concurrent validity was reported to be .70 or greater (Goldberg, 1978).

Perceived English Skills

The Perceived English Skills inventory is a 7-point Likert scale ranging from 1 (very poor) to 7 (extremely good). It consists of 4 questions regarding participants' self-reported English skills to understand, participate in class and the ability to speak and write English. The instrument was derived from Cross (1995) and Lee (2008). The four questions are estimated to take less than 1 minute to complete.

Demographic Questionnaire

The demographic questionnaire asks participants to answer questions regarding their sex, age, citizenship, race/ethnicity, length of stay in the U.S., degree seeking status, university

currently attending, marital status, and number of children. It will be administered in the format of closed-ended questions. In addition, two open-ended questions are included at the end; 1) how would you describe the stresses you experience as a graduate student, and 2) how would you describe your coping style? The qualitative data can provide additional information to understand graduate students' stress and coping styles. The demographic questionnaire takes approximately 5 minutes to complete.

Data Analyses

All the raw data was entered and analyzed with a computer-based statistical program, SPSS (Version 18.0) to generate both descriptive and inferential statistics. For demographic variables, descriptive statistics including means and frequencies were obtained to describe the characteristics. Inferential statistics were conducted at the .05 level of significance to answer the five research questions. Data screenings were conducted to test normal distribution, homogeneity of variance, and collinearity to make sure test assumptions have been met.

Pearson correlation coefficients were obtained to answer research question 1. Research question 2, 3, and 4 were answered with factorial ANOVA and post-hoc analysis (i.e., Bonferroni correction) were used to examine culture and sex factors on stress, coping, and psychological well-being. Lastly, multiple regression analyses were conducted to answer research question 5.

CHAPTER 4: Results

In this chapter, the results are presented in the following sections. First, descriptive statistics are included to summarize the characteristics of the sample. Further, statistical analyses of five research hypotheses are presented. Pearson product moment correlation, factorial ANOVAs, and multiple regression analyses are performed to test research hypotheses.

Demographic Descriptions

The participants consisted of 311 domestic American graduate students of any origin, and international students from Taiwan, China, and Korea. There were 131 (42.1%) Americans, 77 (24.8%) Taiwanese, 53 (17%) Chinese, and 50 (16.1%) Koreans. One hundred and thirty-four (43.1%) graduate students were seeking master degrees, and 177 (56.9%) were seeking doctoral degrees. Males were 104 (33.4%), and females were 207 (66.6%). Their average age was 29.36, with a range of 19 to 56 years old. One hundred and seventy-seven (56.9%) graduate students reported that they are single, 102 (32.8%) reported being married, remarried, or separated, 16 (5.1%) reported divorced, separated, or widowed, and 16 (5.1%) reported cohabitating. For international graduate students, the average length of stay in the U.S. was 40.84 months, ranging from 2 to 135 months. With regard to the number of children participants have, 232 (74.6%) reported having no children, 21 (6.8%) reported having one child, 16 (5.1%) reported having two children, 9 (2.9%) reported having

three children, 4 (1.3%) reported having four children, and 29 (9.3%) participants did not respond to this question.

In subgroup comparisons among domestic American graduate students, and Taiwanese, Chinese, and Korean international graduate students, several demographic were found. In the sample of 131 American graduate students, 52 (39.7%) were seeking master degrees and 79 (60.3%) were seeking doctoral degrees. Males were 36 (27.5%), and females were 95 (72.5%). The average age was 30.9 with a range of 21 to 56 years old. Forty-nine (37.4%) American graduate students reported that they are single, 55 (42%) reported being married, remarried, or engaged, 14 (10.7%) reported divorced, separated, or widowed, and 13 (9.9%) reported cohabitating. Of the 126 American graduate students who responded to the number of children they have, 93 (73.8%) reported that they don't have any child, 9 (7.1%) reported having one child, 12 (9.5%) reported having two children, 8 (6.3%) reported having three children, and 4 (3.2%) reported having four children.

Within the sample of 77 Taiwanese international graduate students, 41 (53.2%) were working on master degrees and 36 (46.8%) were working on doctoral degrees. Twenty-eight (36.4%) were males and 49 (63.6%) were females. Their average age was 28.53 with a range of 21 to 41 years old. Sixty (77.9%) students reported that they are single, 14 (18.2%) reported being married, remarried, or engaged, 1 (1.3%) reported divorced, separated, or widowed, and 2 (2.6%) reported cohabitating. Fifty-three Taiwanese international graduate

students reported that their average length of stay in the U.S. was 41.28 months, ranging from 3 to 135 months. Of the 67 Taiwanese international students who responded to the number of children they have, 63 (94%) reported that they don't have any child, 3 (4.5%) reported having one child, and 1 (1.5%) reported having three children.

In the sample of 53 Chinese international graduate students, 22 (41.5%) reported that they are in master programs, and 31 (58.5%) are in doctoral programs. There were 21 (39.6%) males and 32 (60.4%) females. With an average age of 27.3, their age ranged from 22 to 42 years old. Thirty-four (64.2%) graduate students reported that they are single, 17 (32.1%) reported being married, remarried, or engaged, 1 (1.9%) reported divorced, separated, or widowed, and 1 (1.9%) reported cohabitating. Of the 32 Chinese international graduate students, their average length of stay in the U.S. was 24.16 months with a range of 2 to 63 months. Of the 51 Chinese international graduate students who responded to the number of children they have, 46 (90.2%) reported that they don't have any child, and 5 (9.8%) reported having one child.

Within the sample of 50 Korean international graduate students, 19 (38%) were seeking master degrees and 31 (62%) were seeking doctoral degrees. Nineteen (38%) were males and 31 (62%) were females. Their age ranged from 19 to 41 with an average age of 28.61 years old. Thirty-four (68%) students reported that they are single, and 16 (32%) reported being married, remarried or engaged. Of the 32 Korean international graduate students, the average

length of stay in the U.S. was 56.78 months, ranging from 4 to 135 months. Of the 38 Korean international students who responded to the number of children they have, 30 (78.9%) reported that they don't have any child, 4 (10.5%) reported having one child, and 4 (10.5%) reported having two children (see Table 1).

Table 1

Demographic Information

Category	Total (N=311)	American (n=131)	Taiwanese (n=77)	Chinese (n=53)	Korean (n=50)
Degree Seeking					
Masters	134 (43.1%)	52 (39.7%)	41 (53.2%)	22 (41.5%)	19 (38%)
Doctoral	177 (56.9%)	79 (60.3%)	36 (46.8%)	31 (58.5%)	31 (62%)
Sex					
Male	104 (33.4%)	36 (27.5%)	28 (36.4%)	21 (39.6%)	19 (38%)
Female	207 (66/6%)	95 (72.5%)	49 (63.6%)	32 (60.4%)	31 (62%)
Age Range					
19-25	93 (29.9%)	44 (33.6%)	17 (22.1%)	20 (37.7%)	12 (24%)
26-30	120 (38.6%)	38 (29%)	40 (51.9%)	20 (37.7%)	22 (44%)
31-35	43 (13.8%)	16 (12.2%)	11 (14.3%)	6 (11.3%)	10 (20%)
36-40	23 (7.4%)	12 (9.2%)	4 (5.2%)	3 (5.7%)	4 (8%)
41 and over	23 (7.4%)	20 (15.3%)	1 (1.3%)	1 (1.9%)	1 (2%)
<i>Did not report</i>	9 (2.9%)	1 (0.8%)	4 (5.2%)	3 (5.7%)	1 (2%)
Marital Status					
Single	177 (56.9%)	49 (37.4%)	60 (77.9%)	34 (64.2%)	34 (68%)
Married/Remarried/Engaged	102 (32.8%)	55 (42%)	14 (18.2%)	17 (32.1%)	16 (32%)
Divorced/Separated/Widowed	16 (5.1%)	14 (10.7%)	1 (1.3%)	1 (1.9%)	0 (0%)
Cohabiting	16 (5.1%)	13 (9.9%)	2 (2.6%)	1 (1.9%)	0 (0%)
Length of Stay					
0-12 months	13 (4.2%)		2 (2.6%)	7 (13.2%)	4 (8%)
12-24 months	32 (10.3%)		12 (18.2%)	11 (20.8%)	7 (14%)
25-36 months	21 (6.8%)		14 (15.6%)	5 (9.4%)	4 (8%)
37-48 months	14 (4.5%)		6 (7.8%)	5 (9.4%)	3 (6%)
49-60 months	8 (2.6%)		5 (6.5%)	3 (5.7%)	0 (0%)
61 months and over	29 (9.3%)		14 (18.2%)	1 (1.9%)	14 (28%)
<i>Did not report</i>	194 (62.4%)		24 (31.2%)	21 (39.6%)	18 (36%)
Number of children					
	(n=282)	(n=126)	(n=67)	(n=51)	(n=38)
No children	232 (82.3%)	93 (73.8%)	63 (94%)	46 (90.2%)	30 (78.9%)
1 child	21 (7.4%)	9 (7.1%)	3 (4.5%)	5 (9.8%)	4 (10.5%)
2 children	16 (5.7%)	12 (9.5%)	0 (0%)	0 (0%)	4 (10.5%)
3 children	9 (3.2%)	8 (6.3%)	1 (1.5%)	0 (0%)	0 (0%)
4 children	4 (1.4%)	4 (3.2%)	0 (0%)	0 (0%)	0 (0%)

Descriptive Statistics for Research Variables

The research variables in the study included graduate students' stress (GSI-R), coping skills (Adaptive Coping, Maladaptive Coping), and psychological well-being (GHQ-12). Within graduate students' stress that represented total amount of stress, subcategories of stress were examined, which included academic stress, environmental stress, and family stress. In Table 2, mean, median, range, standard deviation, and skewness were presented for each research variable. The skewness of all the research variables was within the acceptable range of +/-2 criteria (Tabachnick & Fidell, 2001).

Table 2

Descriptive Statistics of Research Variables

Variable	Mean	Median	Range	SD	Skewness
(N=311)					
Stress	73.85	75.00	109	19.974	.108
Adaptive Coping	45.01	45.00	48	6.954	-.084
Maladaptive Coping	24.08	24.00	27	4.610	.182
Psychological Well-Being	18.18	19.00	33	5.771	-.069

Hypotheses Testing Results

Hypothesis 1: There will be no relationships among the variables of stress, coping, and psychological well-being in American and three groups of Asian international graduate students.

H1a: There will be no relationships among stress, coping, and psychological well-being in all graduate students.

H1b: There will be no relationships among stress, coping, and psychological well-being in American graduate students.

H1c: There will be no relationships among stress, coping, and psychological well-being in Taiwanese international graduate students.

H1d: There will be no relationships among stress, coping, and psychological well-being in Chinese international graduate students.

H1e: There will be no relationships among stress, coping, and psychological well-being in Korean international graduate students.

Pearson product moment correlation analyses were conducted to examine relationships among stress, coping, and psychological well-being in all graduate students, American graduate students, Taiwanese international graduate students, Chinese international graduate students, and Korean international graduate students, respectively. In Tables 3, 4, 5, 6, and 7, positive correlation coefficient scores for total amount of stress, academic stress,

environmental stress, and family stress indicated higher levels of stress. Positive correlation coefficient scores for adaptive coping suggested effective coping skills, whereas positive correlation coefficient scores for maladaptive coping indicated ineffective coping skills. With regard to psychological well-being, positive and higher scores of correlation coefficient on the GHQ-12 indicated lower psychological well-being. The correlation, means, and standard deviations for these variables are presented in Tables 3, 4, 5, 6, and 7.

Among all the graduate students, greater total amount of stress was not significantly related to adaptive coping ($r = .003$), but was significantly related to maladaptive coping ($r = .412$, $p < .01$) and lower psychological well-being ($r = .269$, $p < .01$). In examining subcategories of stress, academic stress was significantly correlated with greater maladaptive coping ($r = .386$, $p < .01$) and lower psychological well-being ($r = .337$, $p < .01$). Environmental stress was also significantly related to greater maladaptive coping ($r = .375$, $p < .01$) and lower psychological well-being ($r = .135$, $p < .05$). In addition, family stress was positively correlated with maladaptive coping ($r = .214$, $p < .01$) and lower psychological well-being ($r = .186$, $p < .01$). Adaptive coping was significantly related to greater psychological well-being ($r = -.13$, $p < .05$). Maladaptive coping was significantly related to lower psychological well-being ($r = .35$, $p < .01$) (See Table 3).

Of all the American graduate students, the total amount of stress was not significantly related to adaptive coping ($r = .075$). On the other hand, greater amount of total stress was

positively related to maladaptive coping ($r = .457, p < .01$) and lower psychological well-being ($r = .39, p < .01$). Academic stress, as a subscale of total amount of stress, was significantly related to maladaptive coping ($r = .49, p < .01$) and lower psychological well-being ($r = .427, p < .01$). Environmental stress was also positively correlated with maladaptive coping ($r = .369, p < .01$) and lower psychological well-being ($r = .305, p < .01$). In addition, family stress was positively correlated with maladaptive coping ($r = .229, p < .01$) and lower psychological well-being ($r = .193, p < .05$). Adaptive coping was not significantly related to psychological well-being ($r = .076$). Maladaptive coping was positively related to lower psychological well-being ($r = .497, p < .01$) (See Table 4).

Within the Taiwanese international graduate student population, the amount of stress was not significantly related to adaptive coping ($r = -.11$) or to maladaptive coping ($r = .20$). Greater amount of stress was significantly related to lower psychological well-being ($r = .288, p < .05$). Adaptive coping was significantly related to greater psychological well-being ($r = -.324, p < .01$), whereas maladaptive coping was correlated with lower psychological well-being ($r = .227, p < .05$) (See Table 5).

Of all the Chinese international graduate students, greater amount of stress was not significantly related to adaptive coping ($r = -.007$) or psychological well-being ($r = .235$), but was related to greater maladaptive coping ($r = .425, p < .01$). Adaptive coping was not significantly related to psychological well-being ($r = -.247$). Maladaptive coping was

significantly correlated with lower psychological well-being ($r = .346, p < .05$) (See Table 6).

In the sample of Korean international graduate students, the amount of stress was not significantly related to adaptive coping ($r = -.013$). However, greater amount of stress was significantly related to greater maladaptive coping ($r = .507, p < .01$) and lower psychological well-being ($r = .324, p < .05$). Greater psychological well-being was not significantly correlated with adaptive coping ($r = -.262$) but was significantly related to less maladaptive coping styles ($r = .373, p < .01$) (See Table 7).

Table 3

Bivariate Correlations, Means, and Standard Deviations for Research Variables for All Graduate Students

	1	2	3	4	5	6	7
1 Academic Stress	1	.567**	.488**	.856**	.042	.386**	.337**
2 Environmental Stress	.567**	1	.389**	.841**	.009	.375**	.135*
3 Family Stress	.488**	.389**	1	.722**	-.060	.214**	.186**
4 Stress	.856**	.841**	.722**	1	.003	.412**	.269**
5 Adaptive Coping	.042	.009	-.060	.003	1	.211**	-.128*
6 Maladaptive Coping	.386**	.375**	.214**	.412**	.211**	1	.350**
7 Psychological Well-Being	.337**	.135*	.186**	.269**	-.128*	.350**	1
<i>M</i>	35.34	23.07	15.44	73.85	45.01	24.08	18.18
<i>SD</i>	8.58	9.36	6.59	19.97	6.95	4.61	5.77

Note. * $p < .05$. ** $p < .01$.

Table 4

Bivariate Correlations, Means, and Standard Deviations for Research Variables for American Students

	1	2	3	4	5	6	7
1 Academic Stress	1	.554**	.509**	.869**	.130	.490**	.427**
2 Environmental Stress	.554**	1	.445**	.813**	.020	.369**	.305**
3 Family Stress	.509**	.445**	1	.766**	.016	.229**	.193*
4 Stress	.869**	.813**	.766**	1	.075	.457**	.390**
5 Adaptive Coping	.130	.020	.016	.075	1	.252**	.076
6 Maladaptive Coping	.490**	.369**	.229**	.457**	.252**	1	.497**
7 Psychological Well-Being	.427**	.305**	.193*	.390**	.076	.497**	1
<i>M</i>	34.94	17.81	16.03	68.78	44.88	23.27	19.60
<i>SD</i>	8.93	7.48	6.62	18.91	6.63	4.59	5.61

Note. * $p < .05$. ** $p < .01$.

Table 5

Bivariate Correlations, Means, and Standard Deviations for Research Variables for Taiwanese Students

	1	2	3	4	5	6	7
1 Academic Stress	1	.620**	.536**	.853**	-.078	.132	.295**
2 Environmental Stress	.620**	1	.644**	.893**	-.082	.247*	.173
3 Family Stress	.536**	.644**	1	.819**	-.137	.129	.284*
4 Stress	.853**	.893**	.819**	1	-.111	.202	.288*
5 Adaptive Coping	-.078	-.082	-.137	-.111	1	.193	-.324**
6 Maladaptive Coping	.132	.247*	.129	.202	.193	1	.227*
7 Psychological Well-Being	.295**	.173	.284*	.288*	-.324**	.227*	1
<i>M</i>	35.66	27.18	15.14	77.99	46.22	25.79	18.03
<i>SD</i>	7.61	7.88	5.85	18.32	7.73	4.62	5.83

Note. * $p < .05$. ** $p < .01$.

Table 6

Bivariate Correlations, Means, and Standard Deviations for Research Variables for Chinese Students

	1	2	3	4	5	6	7
1 Academic Stress	1	.770**	.653**	.901**	.057	.365**	.217
2 Environmental Stress	.770**	1	.742**	.938**	.039	.356**	.177
3 Family Stress	.653**	.742**	1	.867**	-.142	.448**	.256
4 Stress	.901**	.938**	.867**	1	-.007	.425**	.235
5 Adaptive Coping	.057	.039	-.142	-.007	1	.053	-.247
6 Maladaptive Coping	.365**	.356**	.448**	.425**	.053	1	.346*
7 Psychological Well-Being	.217	.177	.256	.235	-.247	.346*	1
<i>M</i>	34.15	25.06	14.25	73.45	44.25	23.53	15.70
<i>SD</i>	8.71	9.62	7.22	23.12	6.76	4.28	5.32

Note. * $p < .05$. ** $p < .01$.

Table 7

Bivariate Correlations, Means, and Standard Deviations for Research Variables for Korean Students

	1	2	3	4	5	6	7
1 Academic Stress	1	.629**	.217	.864**	-.022	.491**	.353*
2 Environmental Stress	.629**	1	.078	.812**	.036	.461**	.424**
3 Family Stress	.217	.078	1	.518**	-.053	.133	-.131
4 Stress	.864**	.812**	.518**	1	-.013	.507**	.324*
5 Adaptive Coping	-.022	.036	-.053	-.013	1	.209	-.262
6 Maladaptive Coping	.491**	.461**	.133	.507**	.209	1	.373**
7 Psychological Well-Being	.353*	.424**	-.131	.324*	-.262	.373**	1
<i>M</i>	37.18	28.42	15.60	81.20	44.28	24.12	17.36
<i>SD</i>	8.83	8.80	6.91	18.36	6.69	4.39	5.64

Note. * $p < .05$. ** $p < .01$.

Hypothesis 2: There will be no differences among the four groups in stress, coping, and psychological well-being.

H2a: There will be no differences among American, Taiwanese, Chinese, and Korean international graduate students in the amount of stress.

H2b: There will be no differences among American, Taiwanese, Chinese, and Korean international graduate students in type of coping.

H2c: There will be no differences among American, Taiwanese, Chinese, and Korean international graduate students in level of psychological well-being.

Hypothesis 3: There will be no differences between males and females overall in stress, coping, and psychological well-being.

H3a: There will be no differences between male and female for stress.

H3b: There will be no differences between male and female for coping.

H3c: There will be no differences between male and female for psychological well-being.

Hypothesis 4: There will be no interaction between sex and culture on stress, coping, and psychological well-being

H4a: The effect of sex on stress will not depend on culture.

H4b: The effect of sex on coping will not depend on culture.

H4c: The effect of sex on psychological well-being will not depend on culture.

For hypotheses 2, 3, and 4, a series of 4 (culture) x 2 (sex) factorial ANOVAs were conducted to examine the relationships of culture and sex on stress, coping, and psychological well-being.

Stress

Total amount of stress. A 4 x 2 factorial ANOVA was conducted to investigate relationships among culture (American, Taiwanese, Chinese, and Korean) and sex (males and

females) on total amount of stress. A main effect of culture $F(3, 303) = 6.839, p = .000$ was found on total amount of stress. On the other hand, the participants' sex, $F(1, 303) = .612, p = .434$, did not influence the total amount of stress. There were no significant interactions for this sample. Post hoc results showed that American graduate students reported significantly less total amount of stress than that of Taiwanese international graduate students and that of Korean international graduate students, respectively (see Table 8).

Academic stress. A 4 x 2 factorial ANOVA was conducted to assess relationships among culture and sex on academic stress. A main effect of sex $F(3, 303) = 3.886, p = .05$ was found on academic stress. Females reported greater academic stress than their male counterparts. Because no significant relationship was found among culture on academic stress, it was suggested that graduate students, despite their culture, experienced similar level of academic stress (see Table 9).

Environmental stress. There was a significant difference among American graduate students and international graduate students from Taiwan, China, and Korea in environmental stress, $F(3, 303) = 27.499, p = .00$ (see Table 10). Post hoc analyses revealed that compared with American graduate students, Taiwanese and Korean international graduate students, respectively, experienced greater environmental stress.

Family stress. With regard to relationships among culture and sex in familial stress, no significance was found in either culture or sex. This indicates that despite their culture and sex, all graduate students reported similar level of family stress.

Coping

Relationships among culture and sex in adaptive coping were not significant. However, a main effect of culture $F(3, 303) = 6.734, p = .00$, was found on maladaptive coping (see Table 11). Further, post hoc results showed that compared to American graduate students, Taiwanese international graduate students reported greater use of maladaptive coping skills.

In addition, Taiwanese international graduate students also adopted more maladaptive coping skills than Chinese international graduate students.

Psychological Well-Being

There were significant differences among American graduate students and international graduate students from Taiwan, China, and Korea ($F(3, 303) = 3.681, p = .012$) and significant differences in sex ($F(3, 303) = 14.078, p = .00$) in psychological well-being (see Table 12). However, no interaction was significant. In other words, females reported lower psychological well-being than their male counterparts. In addition, post hoc revealed that Chinese international graduate students reported greater psychological well-being than American graduate students.

Table 8

Analysis of Variance for Total Amount of Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Culture	7791.593	3	2597.198	6.839**	.000
Sex	232.593	1	232.593	.612	.434
Culture x Sex	667.705	3	222.568	.568	.625
Error	115068.768	303	379.765		

Note. * $p < .05$. ** $p < .01$.

Table 9

Analysis of Variance for Academic Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Culture	365.302	3	121.767	1.692	.169
Sex	279.580	1	279.580	3.886*	.050
Culture x Sex	327.096	3	109.032	1.515	.211
Error	21801.996	303	71.954		

Note. * $p < .05$. ** $p < .01$.

Table 10

Analysis of Variance for Environmental Stress

Source	Sum of Squares	df	Mean Square	F	Sig.
Culture	5538.817	3	1846.272	27.499**	.000
Sex	5.880	1	5.880	.088	.767
Culture x Sex	246.716	3	82.239	1.225	.301
Error	20343.339	303	67.140		

Note. * $p < .05$. ** $p < .01$.

Table 11

Analysis of Variance for Maladaptive Coping

Source	Sum of Squares	df	Mean Square	F	Sig.
Culture	401.453	3	133.818	6.734**	.000
Sex	40.545	1	40.545	2.040	.154
Culture x Sex	133.482	3	44.494	2.239	.084
Error	6021.015	303	19.871		

Note. * $p < .05$. ** $p < .01$.

Table 12

Analysis of Variance for Psychological Well-Being

Source	Sum of Squares	df	Mean Square	F	Sig.
Culture	327.942	3	109.314	3.681*	.012
Sex	418.050	1	418.050	14.078**	.000
Culture x Sex	130.873	3	43.624	1.469	.223
Error	8997.984	303	29.696		

Note. * $p < .05$. ** $p < .01$.

Hypothesis 5: Demographic variables will not be related to stress, coping, and psychological well-being among the four groups or combination of groups.

A series of multiple regression analyses were conducted to analyze how demographic variables were related to dependent variables among all students or the four groups of students, respectively. Number of demographic variables included depended upon type of hypothesis and number of participants in subsamples. Prior to the analysis, four variables

were dummy coded. For culture variable, dummy coded variables were created to represent American, Taiwanese, Chinese, and Korean, each using a baseline reference group “American,” which was coded as a zero. With regard to sex variable, male was coded 0 and female was coded 1. For type of degree pursuing, master degree was coded 0 and doctoral degree was coded as 1. With regard to marital status, dummy variables were created to represent single, married, divorced, cohabitated with “single” as a baseline reference group that was coded as a zero.

H5a: There will be no unique effects of culture, sex, age, type of degree pursuing, marital status, and number of children on stress among all students or the four groups of students, respectively.

Total Amount of Stress among All Graduate Students

Seven demographic variables were included: culture, sex, age, type of degree pursuing, marital status, and number of children. Two demographic variables, length of stay in the US and perceived English skills, were excluded from the current analysis because domestic American graduate students did not respond to these two items. Not all participants answered all demographic questions, because these were optional. Only participants who responded to all demographic questions were included in the analysis; therefore, a total number of 279 participants were analyzed.

It was found that the regression model with all seven demographic variables as predictors was significant, $R^2 = .076$, $F(10, 268) = 2.213$, $p < .05$. Demographic variables were significantly accounted for 7.6% of the total amount of stress among all graduate students. Unique contributions from culture and type of degree variables were significantly related to total amount of stress among all graduate students. Culture was the strongest predictor of the total amount of stress among all graduate students.

In examining the culture variable, findings suggested that compared to American graduate students, being Taiwanese ($\beta = .204, p = .003$), Chinese ($\beta = .134, p = .045$) and Korean ($\beta = .189, p = .004$) international graduate students were associated with greater total amount of stress. Results also indicated that graduate students who were pursuing doctoral degree ($\beta = -.130, p = .038$) was significantly correlated with less total amount of stress than that of masters students. See Table 13.

Table 13

Summary of Multiple Regression Analysis for Demographic Variables Predicting Total Amount of Stress among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	62.58	7.89	
Culture			
<i>Taiwanese</i>	9.61	3.24	.204**
<i>Chinese</i>	6.99	3.48	.134*
<i>Korean</i>	11.00	3.76	.189**
Degree	-5.23	2.51	-.130*
Marital Status			
<i>Married</i>	-.229	3.05	-.006
<i>Divorced</i>	-3.14	5.83	-.037
<i>Cohabitate</i>	.278	5.70	.003
Sex	3.42	2.55	.081
Age	.197	.28	.066
Number of Children	1.34	2.09	.056

Note: $R^2 = .046$. * $p < .05$, ** $p < .01$

Subcategories of Stress among All Students

Within total amount of stress, academic stress, environmental stress, and familial stress were examined separately. First, although the regression model for academic stress was not significant ($R^2 = .033$, $F(10, 268) = .919$, $p = .516$), unique contribution was found on sex ($\beta = .14$, $p = .022$). In other words, compared to male graduate students, females may have reported significantly greater academic stress even though the whole model was not significant. No other demographic variables were significant in relation to assessing academic stress. See Table 14.

Table 14

Summary of Multiple Regression Analysis for Demographic Variables Predicting Academic Stress among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	32.10	3.45	
Culture			
<i>Taiwanese</i>	.82	1.41	.041
<i>Chinese</i>	.194	1.52	.009
<i>Korean</i>	1.49	1.64	.060
Degree	-1.43	1.09	-.083
Marital Status			
<i>Married</i>	-.02	1.33	-.00
<i>Divorced</i>	-2.05	2.55	-.06
<i>Cohabitate</i>	.24	2.49	.01
Sex	2.56	1.11	.14*
Age	.06	.12	.05
Number of Children	-.04	.91	-.00

Note: $R^2 = .033$. * $p < .05$, ** $p < .01$

Second, the regression model for environmental stress was significant, $R^2 = .246$, $F(10, 268) = 8.757$, $p = .000$. Demographic variables accounted for 24.6% of variance of environmental stress among all graduate students. Specifically, culture and type of degree pursuing were strongly correlated with environmental stress, suggesting that compared to American graduate students, Taiwanese ($\beta = .386$, $p = .000$), Chinese ($\beta = .308$, $p = .000$), and Korean ($\beta = .341$, $p = .000$) international students were associated with greater amount of environmental stress. In addition, doctoral students ($\beta = -.115$, $p = .042$) were associated with experiencing less environmental stress. See Table 15.

Table 15

Summary of Multiple Regression Analysis for Demographic Variables Predicting Environmental Stress among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	14.02	3.29	
Culture			
<i>Taiwanese</i>	8.41	1.35	.386**
<i>Chinese</i>	7.40	1.45	.308**
<i>Korean</i>	9.16	1.57	.341**
Degree	-2.14	1.05	-.115*
Marital Status			
<i>Married</i>	-1.32	1.27	-.069
<i>Divorced</i>	-3.38	2.43	-.085
<i>Cohabitate</i>	-.97	2.38	-.023
Sex	.08	1.06	.00
Age	.20	.12	.15
Number of Children	-.52	.87	-.05

Note: $R^2 = .246$. * $p < .05$, ** $p < .01$

Lastly, the regression model was found significant with regard to family stress ($R^2 = .076$, $F(10, 268) = 2.212$, $p = .017$). Demographic variables accounted for 7.6% of variance of family stress among all graduate students. Type of degree pursuing and number of children were significantly related to family stress among all graduate students. In other words, students pursuing doctoral degrees were correlated with having less family stress than students pursuing masters degrees ($\beta = -.124$, $p = .046$). In addition, number of children ($\beta = .241$, $p = .007$) is significantly and positively correlated with family stress. See Table 16.

Table 16

Summary of Multiple Regression Analysis for Demographic Variables Predicting Family Stress among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	16.46	2.62	
Culture			
<i>Taiwanese</i>	.38	1.08	.024
<i>Chinese</i>	-.61	1.16	-.04
<i>Korean</i>	.35	1.25	.018
Degree	-1.67	.83	-.124*
Marital Status			
<i>Married</i>	1.11	1.01	.080
<i>Divorced</i>	2.29	1.94	.080
<i>Cohabitate</i>	1.00	1.89	.033
Sex	.79	.85	.057
Age	-.06	.09	-.064
Number of Children	1.90	.70	.241**

Note: $R^2 = .076$. * $p < .05$, ** $p < .01$

Total Amount of Stress among American Graduate Students

Demographic variables for this analysis include sex, age, type of degree, marital status, and number of children. Only American graduate students were selected for analysis. A total of 126 American graduate students were included. A multiple regression analysis revealed that the model was not significant ($R^2 = .063$, $F(6, 119) = 1.13$, $p = .347$), although sex ($\beta = .201$, $p = .039$) indicated a unique contribution to the model indicating that American female graduate students were associated with having greater total amount of stress than their male counterparts. See Table 17.

Table 17

Summary of Multiple Regression Analysis for Demographic Variables Predicting Total Amount of Stress among American Graduate Students (N= 126)

Demographic Variable	B	SE B	β
(Constant)	57.78	9.94	
Degree	-3.96	3.49	-.105
Marital Status			
<i>Married</i>	-3.21	4.21	-.086
<i>Divorced</i>	-6.27	6.31	-.106
<i>Cohabitate</i>	-3.95	6.11	-.063
Sex	8.30	3.97	.201*
Age	.29	.32	.130
Number of Children	.96	2.35	.056

Note: $R^2 = .063$. * $p < .05$, ** $p < .01$

Subcategories of Stress among American Graduate Students

When academic stress was examined among American graduate students, the regression model was not significant, $R^2 = .102$, $F(6, 119) = 1.916$, $p = .073$. However, sex variable ($\beta = .290$, $p = .002$) indicated a unique contribution to the model suggesting that American female graduate students were correlated with greater academic stress than their male counterparts (see Table 18). With regard to environmental stress among American graduate students, the regression model was not significant ($R^2 = .059$, $F(6, 119) = 1.065$, $p = .391$). Similarly, the regression model predicting family stress among American graduate students also was not significant, $R^2 = .064$, $F(6, 119) = 1.155$, $p = .334$.

Table 18

Summary of Multiple Regression Analysis for Demographic Variables Predicting Academic Stress among American Graduate Students (N= 126)

Demographic Variable	B	SE B	β
(Constant)	30.21	4.61	
Degree	-2.23	1.62	-.124
Marital Status			
<i>Married</i>	-.17	1.96	-.010
<i>Divorced</i>	-3.68	2.93	-.132
<i>Cohabitate</i>	-1.42	2.84	-.047
Sex	5.69	1.84	.290**
Age	.07	.15	.070
Number of Children	.14	1.09	.017

Note: $R^2 = .102$. * $p < .05$, ** $p < .01$

Total Amount of Stress and Subcategories of Stress among Taiwanese International Graduate Students

A total of 53 Taiwanese participants were included for this analysis. Due to low endorsement rate of demographic questions among Taiwanese international graduate students, it was determined that three demographic variables (i.e., age, marital status, number of children) were excluded from this analysis. Therefore, type of degree, sex, perceived English skills, and length of stay in the US were demographic variables that included for the analysis. The determination was based on previous research and other analyses in the current research. Based on the rule of thumb of having at least 10 to 15 cases per predictor (Field, 2005), four demographic variables containing sex, type of degree pursuing, length of stay in the US, and perceived English skills were entered for this analysis.

The selected demographic variables were not significantly related to total amount of stress ($R^2 = .063$, $F(4, 48) = .813$, $p = .523$), academic stress ($R^2 = .09$, $F(4, 48) = 1.185$, $p = .329$), environmental stress ($R^2 = .049$, $F(4, 48) = .622$, $p = .649$), or family stress ($R^2 = .056$, $F(4, 48) = .707$, $p = .591$) among Taiwanese international graduate students, respectively.

Total Amount of Stress among Chinese International Graduate Students

Among 50 Chinese international graduate students, only 32 participants responded to the item length of stay in the US; therefore, 32 participants were included for this analysis. Two demographic variables (i.e., length of stay in the US and perceived English skills) were selected. The regression model was significant and accounted for 20.6% of the variance ($R^2 = .206$, $F(2, 29) = 3.752$, $p = .036$) of total amount of stress among Chinese international graduate students. Perceived English skills variable had a significant unique contribution ($\beta = -.486$, $p = .10$) to the model, which suggested that Chinese international graduate students who reported having poorer perceived English skills were associated with experiencing greater total amount of stress.

Subcategories of Stress among Chinese International Graduate Students

When academic stress variable was examined, the regression model was not significant ($R^2 = .158$, $F(2, 29) = 2.718$, $p = .083$); however, perceived English skills showed a unique contribution ($\beta = -.419$, $p = .029$) to the model. With regard to environmental stress, the regression model was not significant ($R^2 = .137$, $F(2, 29) = 2.306$, $p = .118$), but perceived English skills indicated a unique contribution ($\beta = -.382$, $p = .048$). Similarly, perceived English skills and length of stay in the US were not significantly correlated with family stress among Chinese international graduate students ($R^2 = .273$, $F(2, 29) = 5.455$, $p = .10$); however, perceived English skills variable showed a unique contribution ($\beta = -.560$, $p = .003$) to the model.

Total Amount of Stress among Korean International Graduate Students

Among 50 Korean international graduate students, 32 of those responded to all demographic items that allowed for analysis. With a sample of 32 participants, two demographic variables (i.e., perceived English skills and length of stay in the US) were selected. The selected variables were determined based on previous research.

The combined demographic variables (i.e., perceived English skills and length of stay in the US) were significantly correlated with total amount of stress among Korean international graduate students; the two demographic variables accounted for 19% of the total variance ($R^2 = .190$, $F(2, 29) = 3.393$, $p = .047$). However, no single variable showed a unique contribution.

Subcategories of Stress among Korean International Graduate Students

Perceived English skills and length of stay in the US combined were not significantly correlated with academic stress among Korean international graduate students ($R^2 = .084$, $F(2, 29) = 1.334$, $p = .279$). With regard to environmental stress, the regression model was found to be significant ($R^2 = .295$, $F(2, 29) = 6.076$, $p = .006$). In other words, perceived English

skills and length of stay in the US combined accounted for 29.5% of variance of environmental stress among Korean international graduate students. Specifically, perceived English skills showed a unique contribution ($\beta = -.458, p = .015$) to the model indicating that Korean international graduate students with lower perceived English skills were correlated with having greater environmental stress. Last but not least, perceived English skills and length of stay in the US combined were not significantly correlated with family stress among Korean international graduate students ($R^2 = .023, F(2, 29) = .337, p = .717$).

H5b: There will be no unique effects of culture, sex, age, type of degree pursuing, marital status, and number of children on coping among all students or the four groups of students, respectively.

Coping among All Students

Coping was categorized into adaptive coping and maladaptive coping, which were analyzed separately. The regression model was not significant for adaptive coping among all graduate students ($R^2 = .029, F(10, 268) = .787, p = .641$), and no independent variable had a unique contribution to the model. On the other hand, the regression model was found significant for maladaptive coping among all graduate students ($R^2 = .073, F(10, 268) = 2.109, p = .024$). Demographic variables accounted for 7.3% of variance of maladaptive coping among all graduate students. As indicated in Table 19, within the culture variable, Taiwanese graduate students ($\beta = .20, p = .005$) were found to have unique contribution to the model. In other words, Taiwanese students were associated with using more maladaptive coping.

Table 19
Summary of Multiple Regression Analysis for Demographic Variables Predicting Maladaptive Coping among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	24.16	1.77	
Culture			
<i>Taiwanese</i>	2.06	.73	.20**
<i>Chinese</i>	.28	.78	.02
<i>Korean</i>	1.08	.84	.08
Degree	-.63	.56	-.07
Marital Status			
<i>Married</i>	.47	.69	.05
<i>Divorced</i>	1.36	1.31	.07
<i>Cohabitate</i>	-.62	1.28	-.03
Sex	1.09	.57	.12
Age	-.05	.06	-.08
Number of Children	-.33	.47	-.06

Note: $R^2 = .073$. * $p < .05$, ** $p < .01$

Coping among American Graduate Students

The regression model for adaptive coping among American graduate students was not significant ($R^2 = .060$, $F(6, 119) = 1.077$, $p = .383$). However, marital status variable indicated that married American graduate students ($\beta = .245$, $p = .032$) were associated with using more adaptive coping than their counterparts who were single. See Table 20.

Furthermore, results revealed that maladaptive coping among American graduate students was found to be significant, $R^2 = .120$, $F(6, 119) = 2.291$, $p = .032$, indicating that combined demographic variables accounted for 12% of variance. Sex variable ($\beta = .276$, $p = .004$) was the only predictor to the regression model suggesting that female American graduate students were associated with adopting more maladaptive coping. See Table 21.

Table 20

Summary of Multiple Regression Analysis for Demographic Variables Predicting Adaptive Coping among American Graduate Students (N= 126)

Demographic Variable	B	SE B	β
(Constant)	43.08	3.56	
Degree	1.12	1.25	.083
Marital Status			
<i>Married</i>	3.28	1.51	.245*
<i>Divorced</i>	2.15	2.26	.102
<i>Cohabitate</i>	3.02	2.19	.134
Sex	1.43	1.42	.276**
Age	-.02	.08	.097
Number of Children	-.06	.11	-.076

Note: $R^2 = .06$. * $p < .05$, ** $p < .01$

Table 21

Summary of Multiple Regression Analysis for Demographic Variables Predicting Maladaptive Coping among American Graduate Students (N= 126)

Demographic Variable	B	SE B	β
(Constant)	21.74	2.36	
Degree	-.70	.83	-.075
Marital Status			
<i>Married</i>	1.29	1.00	.140
<i>Divorced</i>	1.51	1.50	.104
<i>Cohabitate</i>	-.38	1.45	-.025
Sex	2.80	.94	.276**
Age	-.02	.08	-.033
Number of Children	-.64	.56	-.154

Note: $R^2 = .120$. * $p < .05$, ** $p < .01$

Coping among Taiwanese International Graduate Students

Selected demographic variables were not significantly related to adaptive coping ($R^2 = .060$, $F(4, 48) = .763$, $p = .554$) or maladaptive coping ($R^2 = .037$, $F(4, 48) = .46$, $p = .764$) among Taiwanese international graduate students.

Coping among Chinese International Graduate Students

Length of stay in the US and perceived English skills were not significantly correlated with adaptive coping ($R^2 = .014$, $F(2, 29) = .207$, $p = .814$) or maladaptive coping ($R^2 = .153$, $F(2, 29) = 2.611$, $p = .091$) among Chinese international graduate students, respectively. However, perceived English skills showed a unique contribution ($\beta = -.41$, $p = .033$) in the regression model that analyzed maladaptive coping.

Coping among Korean International Graduate Students

Perceived English skills and length of stay in the US combined were not significantly correlated with adaptive coping among Korean international graduate students ($R^2 = .151$, $F(2, 29) = 2.577$, $p = .093$). Nonetheless, perceived English skills showed a unique contribution ($\beta = .438$, $p = .032$) to the model suggesting that Korean international graduate students with higher perceived English skills were correlated with use of more adaptive coping. Additionally, perceived English skills and length of stay in the US combined showed significant relationship with maladaptive coping among Korean international graduate students ($R^2 = .254$, $F(2, 29) = 4.948$, $p = .014$). In other words, perceived English skills and length of stay in the US combined accounted for 25.4% of variance in maladaptive coping among Korean international graduate students. However, no single variable indicated a unique contribution.

H5c: There will be no unique effects of culture, sex, age, type of degree pursuing, marital status, and number of children on psychological well-being among all students or the four groups of students, respectively.

Psychological Well-Being among All Graduate Students

Demographic variables were significantly correlated with psychological well-being; the combined demographic variables accounted for 16.4% of variance of psychological well-being among all graduate students ($R^2 = .164$, $F(10, 268) = 5.274$, $p = .000$). Unique contributions were shown in culture (i.e., Taiwanese and Chinese), type of degree, and sex variables. Within culture variable, Taiwanese graduate students ($\beta = -.146$, $p = .026$) and Chinese graduate students ($\beta = -.216$, $p = .001$) were correlated with having greater psychological well-being. With regard to type of degree, doctoral students ($\beta = -.170$, $p = .004$) were correlated with having greater psychological well-being. In addition, female graduate students ($\beta = .223$, $p = .000$) were correlated with having less psychological well-being. See Table 22.

Table 22

Summary of Multiple Regression Analysis for Demographic Variables Predicting Psychological Well-Being among All Graduate Students (N= 279)

Demographic Variable	B	SE B	β
(Constant)	17.83	2.16	
Culture			
<i>Taiwanese</i>	-1.98	.89	-.146*
<i>Chinese</i>	-3.23	.95	-.216**
<i>Korean</i>	-1.89	1.03	-.113
Degree	-1.97	.69	-.170**
Marital Status			
<i>Married</i>	-.17	.83	-.014
<i>Divorced</i>	2.10	1.60	.085
<i>Cohabitate</i>	1.17	1.56	.044
Sex	2.70	.70	.223**
Age	.02	.08	.026
Number of Children	-.04	.57	-.005

Note: $R^2 = .164$. * $p < .05$, ** $p < .01$

Psychological Well-Being among American Graduate Students

As indicated in Table 23, the combined demographic variables significantly accounted for 21.2% of variance of psychological well-being among American graduate students ($R^2 = .212$, $F(6, 119) = 4.547$, $p = .000$). Specifically, type of degree ($\beta = -.229$, $p = .008$) and sex ($\beta = .405$, $p = .000$) showed significant and unique contributions. Sex was the strongest predictor, which suggested that American female graduate students were correlated with having lower psychological well-being. On the other hand, American doctoral students were correlated with experiencing greater psychological well-being.

Table 23

Summary of Multiple Regression Analysis for Demographic Variables Predicting Psychological Well-Being among American Graduate Students (N= 126)

Demographic Variable	B	SE B	β
(Constant)	14.71	2.76	
Degree	-2.61	.97	-.229**
Marital Status			
<i>Married</i>	.92	1.17	.081
<i>Divorced</i>	1.88	1.75	.106
<i>Cohabitate</i>	1.07	1.70	.056
Sex	5.07	1.10	.405**
Age	.07	.09	.105
Number of Children	-.25	.65	-.048

Note: $R^2 = .212$. * $p < .05$, ** $p < .01$

Psychological Well-Being among Taiwanese International Graduate Students

The selected demographic variables were not significantly related to psychological well-being ($R^2 = .073$, $F(4, 48) = .952$, $p = .443$) among Taiwanese international graduate students.

Psychological Well-Being among Chinese International Graduate Students

Length of stay in the US and perceived English skills were significantly correlated with psychological well-being among Chinese international graduate students and accounted for

27.2% of total variance ($R^2 = .272$, $F(2, 29) = 5.425$, $p = .010$). Independently, length of stay in the US ($\beta = .482$, $p = .008$) and perceived English skills ($\beta = -.440$, $p = .015$) made unique contributions. In other words, Chinese international graduate students who stayed longer in the US were associated with lower psychological well-being. In addition, Chinese international graduate students who perceived themselves as having better English skills were correlated with experiencing greater psychological well-being.

Psychological Well-Being among Korean International Graduate Students

Perceived English skills and length of stay in the US combined were significantly correlated with psychological well-being among Korean international graduate students ($R^2 = .187$, $F(2, 29) = 3.329$, $p = .050$) that accounted for 18.7% of the variance. Additionally, perceived English skills showed a unique contribution ($\beta = -.456$, $p = .023$) to the model indicating that Korean international graduate students who perceived themselves as having better English skills were associated with greater psychological well-being.

CHAPTER 5: Discussion

In this chapter, results summary is presented in three sections that are organized by the major hypotheses with supportive or contrary evidence found from previous research. In sum, three groups of Asian international graduate students experienced greater stress than American graduate students. All graduate students with greater academic, environmental, and family stress were associated with maladaptive coping skills. All graduate students using more adaptive coping skills were associated with greater psychological well-being. In addition, doctoral students, no matter the culture, reported having less overall stress and greater psychological well-being. Although Taiwanese international graduate students tended to use maladaptive coping skills, their psychological well-being was still great. Perceived English skills remained to be a strong predictor in stress, coping, and psychological well-being especially in Chinese and Korean international students.

Summary of Results

Relationships among Stress, Coping, and Psychological Well-Being in American Graduate Students and in International Students from Taiwan, China, and Korea

The results of the present study are consistent with Stecker's (2004) findings of a significant relationship between stress and maladaptive coping among graduate students and extends her findings to international graduate students from Taiwan, China, and Korea. An examination of subcategories of stress showed that graduate students as a whole experienced greater academic, environmental, and family stress when they adopted maladaptive coping skills. In addition, consistent with Stecker's (2004) research, current study indicated that graduate students with stress reported lower psychological well-being. Moreover, results revealed that graduate students who used more adaptive coping skills reported greater psychological well-being; on the other hand, those who adopted more maladaptive coping skills were associated with lower psychological well-being. This finding is supported by

several studies which suggests that adaptive coping skills (e.g., action and problem-solving) are correlated with fewer psychological symptoms whereas maladaptive coping skills (e.g., avoidance and distancing) are associated with mental health problems, such as depression, phobic anxiety, and somatization (Holahan & Moos, 1987; Stecker, 2004; Watson & Sinha, 2008).

When graduate students were investigated by culture, American graduate students as well as international graduate students from Taiwan, China, and Korea all reported that the more they used maladaptive coping skills, the lower their psychological well-being. This finding is consistent with previous research (Park & Adler, 2003) in that coping styles that were escape and avoidant in nature were associated with lower psychological well-being. In addition, findings indicated that American graduate students as well as Taiwanese and Korean international graduate students who reported more stress also reported lower psychological well-being. This result is consistent with Stecker's (2004) finding that regardless of ethnicity, graduate students with stress reported having depressive symptoms. However, this relationship was not significant in Chinese international students. This is similar to Kim and colleagues' (1997) research that although Chinese students reported having higher level of stress, they only indicated minimal physical symptoms that were related to psychological well-being. Kim et al. (1997) suggested that Chinese students may have adopted effective coping skills. Moreover, Chinese and Korean international graduate students as well as American graduate students with greater total amount of stress reported using more maladaptive coping skills. Taiwanese international students population was the only group that showed a significant positive relationship between adaptive coping and greater psychological well-being, which suggest that the more they used adaptive coping skills, the greater their psychological well-being. It is possible that Taiwanese international graduate students used more cognitive strategies (e.g., analyzing problems) that were linked to

adaptive coping (Misra & Castillo, 2004) than their international and domestic counterparts. *Culture and Sex Differences among American Graduate Students and Taiwanese, Chinese, and Korean International Graduate Students in Stress, Coping, and Psychological Well-Being*
Culture Differences

Contrary to Hyun and colleagues' (2007) findings of a similar rate of stress experienced among international and domestic graduate students, current results indicated that compared to American domestic graduate students, Korean and Taiwanese international students reported having greater total amount of stress. One possible explanation may be that although Hyun et al. (2007) found a similar rate of stress across culture, they only included one question (i.e., "in the past 12 months, have you had an emotional or stress-related problem that significantly affected your well-being and/or academic performance?) to assess stress that might not have captured a wide array of stress graduate students generally experience. This explanation is supported by results in the current study that suggested both Taiwanese and Korean international graduate students reported experiencing greater environmental stress than their American domestic peers. Some of the responses from the open-ended questions supported the idea that Taiwanese and Korean international graduate students experienced environmental stress; these were: difficulty fitting in with native school peers other than peers from the same culture, hard to participate in class discussions due to inadequate English proficiency, fear of not meeting expectations of advisors and school programs, difficulty communicating with professors, hard to find support from others, or trouble adjusting living in the states. In addition, themes of being "worried," "stressed," "nervous," and "anxious" were commonly stated in the open-ended questions Taiwanese and Korean international graduate students provided. Several studies have supported the notion that international students who reported stress when they experienced negative relationship with their faculty advisor (Hyun et al., 2007), struggled with English proficiency (Swagler &

Ellis, 2003), and needed social and cultural adjustments (Wan et al., 1992; White, Brown & Suddick, 1983; Yeh & Inose, 2003). It was noted that the relationship in total amount of stress was not significantly different in Chinese international graduate students when comparing to their American graduate peers. One reason may be that Chinese international graduate students in the current study reported having greater psychological well-being. It is possible that in recent the transition from a closed to a more open society, Chinese students have experienced a wide variety of individual, economical, and societal changes that helped them gain a greater sense of flexibility and resiliency when it comes to adjustment. Kim et al. (1997) suggested in their study that Chinese students may have used coping successfully to deal with their stress.

Another finding suggested that Taiwanese international students adopted more maladaptive coping skills than their American or Chinese peers. This result is supported by Cross's (1995) findings that East Asian graduate students with higher interdependent self-construal, a construct measuring their relationships with others or in-groups, were more likely to use indirect coping skills that shy away from problem-solving. Although indirect coping skills was termed as maladaptive coping skills in the current study, both studies used different versions of COPE scales developed by Carver and colleagues. Cross (1995) stated that indirect coping style may be effective in their host countries that are more collectivistic; however, the same coping style may explain their higher stress and difficulty for culture adjustment when they moved to the US, a society that is more individualistic in nature. However, the fact that Chinese international graduate students did not report more maladaptive coping skills may be explained by the finding in the present study that Chinese students in the current sample may have greater psychological well-being to begin with.

It was noted that Chinese graduate students did not report having significantly greater stress and subcategories of stress in academics, environment, and family. It may be possible

that Chinese students who come to study in America are more prepared and selected because of the competitive nature of education environment in China. Therefore, Chinese students may feel less stressed than other Asian international graduate students from Taiwan and Korea. One may also speculate that because Chinese international graduate students are more prepared and selected, they may have higher self-expectations that leave less room for them to admit stress that may be interpreted as failure.

Sex Differences

Female graduate students in general, despite their culture, reported having greater academic stress and experiencing lower psychological well-being. This finding is consistent with several studies that found female students tend to report higher academic stress (Hodgson & Simoni, 1995; Smith & Renk, 2007) and use of venting, a type of emotional-focused coping (Hyun et al., 2006) that is associated with lower psychological functioning (Watson & Sinha, 2008). On the other hand, this finding is contrary to Mallinckrodt & Leong's (1992) result that international male graduate students were likely to be more depressed than their American peers. Because previous research was conducted in almost two decades ago, it is very likely that sex roles are changing in the society where more females receive higher education nowadays, but they may be expected to play other traditional roles at the same time which can exacerbate stress in academics. In addition, female graduate students may experience lower psychological well-being in various forms other than depression, which is supported by CDC's (2007) report that females between ages of 18-64 suffer from greater psychological distress than their male counterparts.

Predictors of Stress, Coping, and Psychological Well-Being for American Graduate Students and in International Graduate Students from Taiwan, China, and Korea

Culture Variable

Culture was found to be significantly correlated with total amount of stress and

environmental stress among all graduate students, respectively. In other words, being an international student from Taiwan, China, or Korea was associated with experiencing higher overall stress and environmental stress. This finding is consistent with previous research (Hartnett & Katz, 1977; Stewart, 1995; Swagler & Ellis, 2003) that international students experienced greater stress that were both common (e.g., school-related stress) and unique (e.g., cultural adjustment, language barriers, and lack of social support).

Another result found that culture was significantly correlated with maladaptive coping, especially in Taiwanese international students. As previous discussed, East Asian students tended to use indirect coping skills or in the current study termed as maladaptive coping skills, that were commonly used in collectivistic cultures and might be viewed as effective in their respective culture (Cross, 1995). This explanation is supported by another current finding that Taiwanese and Chinese international graduate students were associated with experiencing greater psychological well-being.

Sex Variable

Findings suggested that demographic variables were not significantly correlated with total amount of stress and academic stress among American graduate students, but sex variable indicated a unique contribution. This finding suggests that female American graduate students may experience greater overall stress and academic stress than their male counterparts. Although this is consistent with previous research (Hodgson & Simoni, 1995; Smith & Renk, 2007) that female students were like to experience high stress especially in academics, the result should be interpreted with caution because the overall model was not significant.

In addition, demographic variables were significantly correlated with maladaptive coping skills in American graduate students, especially being a female was correlated with using more maladaptive coping skills. As previously discussed, female students were more

likely to use emotional-focused coping strategies (Hyun et al., 2006) that were associated with maladaptive coping, such as venting or crying. Nonetheless, they were academically focused and successful despite use of emotional-focused coping and high stress (Nelson et al., 2001). However, American female graduate students were also associated with having lower psychological well-being, which was consistent with previous research (Watson & Sinha, 2008). Nonetheless, in Hyun et al.'s (2006) research, 81.9% of participants were domestic graduate students where as 18.1% were international students. In Nelson et al.'s (2001) study that focused on counseling psychology graduate students, culture was not an identified variable. Therefore, it was not conclusive that this phenomenon only exists in American graduate students. Regardless, American graduate students remained a large proportion of participants being studied; therefore, current result can considered to be supported by previous studies.

Degree Pursuing

Consistent with previous research (Hull, 1978; Melby & Wolf, 1961), current findings indicated that being a doctoral student, no matter which culture, was associated with having less overall stress as well as environmental and family stress and better psychological well-being. One may speculate that because the length of doctoral programs is usually longer than master programs, students who decide to pursue a doctoral degree may have researched well in advance regarding program requirements, length of the program, and subsequent career paths before committing to the decision to enter a program. Students who are prepared and know what to expect may experience less stress and psychological problems. This can be explained by the current result that doctoral graduate students as a whole was associated with having greater psychological well-being. Generally speaking, doctoral students are older than and are developmentally more mature than master students; these factors would help with adjusting to an environment that affects their psychological well-being. In addition, it may be

possible that many doctoral students may have finished master programs before entering a doctoral program; some students may even have been in the same institutions for both degrees. These factors may explain why doctoral students may have used coping more effectively to obtain a greater psychological well-being.

Perceived English Skills

Chinese international graduate students. In Chinese international graduate students, demographic variables were significantly correlated with total amount of stress. Chinese international students who had higher overall stress were associated with lower perceived English skills. In subcategories of stress that investigated academic, environmental, and family stress, demographic variables did not predict each category of stress among Chinese international students, but perceived English skills were found to have a unique contribution in each case. In addition, although the regression model was not significant, perceived English skills showed a unique contribution in maladaptive coping. The unique contribution should be interpreted with caution because the regression model was not significant. Moreover, Perceived English skills and length of stay combined and independently were significantly correlated with psychological well-being in this population. In other words, Chinese international graduate students with higher perceived English skills are associated with having less stress, less maladaptive coping, greater psychological well-being. These findings were consistent with several studies that found self-perceived English proficiency as one of the strongest predictors of the amount of stress international students experienced in academic, social, and cultural adjustments (Wan et al., 1992; White, Brown, & Suddick, 1983; Yeh & Inose, 2003). An open-ended question that inquired participants' stress supported the idea that Chinese international graduate students viewed their English ability as a major source of stress; some statements were: "poor skills of listening and speaking English," "speaking skill," "writing skill," and "language problems."

It is possible that Chinese international graduate students who perceived themselves as having better English skills are more likely to communicate and solve problems than to shy away from the problems. Thus, they may experience better psychological well-being. A special note is that Chinese international students who stayed longer in the US were correlated with lower psychological well-being. As stated in Stewart's (1995) research, graduate students who are close to finish their degree are anxious about securing a job. Statements in the open-ended questions by Chinese international students expressed a common theme of "stressed about future job seeking." Another Chinese student stressed his/her worry in visa status. It is possible that the pressure of having to renew a student visa is a unique concern in Chinese international graduate students. The longer they stay in the US may imply pressure of needing to find a job or decide whether or not they are to return to their home country. These concerns can be associated with lower psychological well-being.

Korean international graduate students. Combined perceived English skills and length of stay were significantly correlated with total amount of stress in Korean international graduate students. In other words, Korean international students with higher perceived English skills and longer length of stay were likely to have less total amount of stress. With regard to adaptive coping, although the regression model was not significant, perceived English skills showed a unique contribution. In addition, perceived English skills and length of stay combined predicted maladaptive coping. In other words, Korean international students who perceived themselves having better English and stayed longer in the US were associated with less stress and less use of maladaptive coping. Additionally, Korean international graduate students with higher perceived English skills were associated with greater psychological well-being. The finding regarding stress is contrary to Kim et al.'s (1997) result that indicated low stress in Korean students. However, because Kim and colleague's (1997) research was conducted in students' home country, Koreans, similar to other

international students, may experience greater stress when they move to the US (Wan et al., 1992). Because use of adaptive coping skills are more active and problem-solving focused in nature, students who perceived themselves as having better English skills may feel more comfortable reaching out for support in the local community. Korean international graduate students usually include a larger number of Christians than other Asian groups. It is likely that the more they perceived themselves as having better English skills, the more likely they may seek support from churches and interact with local communities. As several Korean students noted in an open-ended question that asked about coping, “praying to God” was a common theme. On the contrary, Korean international graduate students who have lower perceived English skills may be more likely to withdraw or distract self that require fewer interactions with the others which can be another source of stress to them.

Number of Children & Marital Status

Number of children was significantly correlated with family stress among all graduate students, despite their culture. This makes sense as having children increases one’s family responsibility. In an open-ended question that further examined participants’ stress, many responded that they had difficulties arranging childcare, or experienced role conflicts being a parent and a graduate student at the same time. This result is supported by Offstein et al.’s (2004) finding that in both domestic and international graduate students, having multiple roles is associated with conflicting demands that can be stressful.

Although demographic variables were not significantly correlated with adaptive coping in American graduate students, marital status indicated a unique contribution suggesting married students may be more likely to use adaptive coping skills than students who are single. It may be possible that married students need to use more adaptive coping skills, such as planning, positive reframing, and emotional support to find balance with their multiple roles and demands.

Limitations of the Study

Some limitations from the current study needed to take into consideration. First, self-report may not reflect participants' true perception because of a possibility of answering questions in a socially desirable way to avoid possible stigma. Second, generalization from current population to other groups of students may be limited and made with caution. For example, although undergraduate and graduate students may share some common stressors, undergraduate students may be at a different developmental level than that of graduate students. Another example indicates that international students from countries other than Taiwan, China, and Korea may be influenced by each of their unique cultural factors that may impact the generalization. Third, more participants, especially with international student populations, can be recruited. Fourth, relationships among variables were examined; in other words, no causal effect can be inferred.

Directions for Future Research

First, future studies can include other culture variables, such as acculturation level, personality, and self-identity. This may be able to help to distinguish some underlying reasons of different stress, coping, and psychological well-being levels. Second, some form of standardized English score can be used to differentiate international students' perceived English skills and true English abilities. This can have practical implications in terms of learning different ways to help international students navigate their stress. Third, a longitudinal study may help to trace patterns of their stress and coping, and how that may in turn affect their psychological well-being. Fourth, experimental studies that determined causal relationship can further explore how different stress may elicit different types of coping skills. Fifth, undergraduate domestic and international students can be included in future studies to learn more details about how different groups of students cope in a typical university setting.

Implications for Professional Practice

Several recommendations from the findings of the current study can serve to inform professional practice. With changing of demographics in recent years, more Asian international graduate students have received higher education in the US. Universities may not be effective in providing culturally sensitive support in response to this trend. The current study attempts to investigate stress, coping, and psychological well-being in American domestic graduate students and in Asian international graduate students from Taiwan, China, and Korea. It is not uncommon for graduate students to experience psychological distress (Stewart, 1995); however, a smaller proportion of these students is willing to seek mental health services (Stecker, 2004). The findings from the current study can help psychologists working with graduate students to gain a better understanding of their stresses, ways of coping and how these affect their psychological well-being; by doing so, psychologists may be more effective in providing culturally sensitive counseling and developing appropriate outreach programs.

It is recommended that psychologists provide culturally sensitive stress reduction and coping strategies for diverse students. First, recognizing that Asian international graduate students experience greater stress than their American counterparts is an important first step for psychologists to empathize, and to validate the feelings and the struggles that international graduate students have. Oftentimes, the understanding and validation itself can serve as a relief and build therapeutic rapport with Asian international graduate students. It is noted that both Korean and Taiwanese international graduate students reported greater environmental stress than their American counterparts. One way psychologists can help international students master environmental stress is by teaching them common American social norms and assertiveness skills that may not be encouraged in their home country. Another way is for psychologists, especially those working in a university counseling setting, to recommend

resources, such as professional/ student associations or local activities that can help student become acquainted to the environment.

Second, another finding suggested that female graduate students experience greater academic stress and less psychological well-being. In addition, number of children is associated with greater family stress. It is possible that females today not only have opportunities to seek higher education, but also are expected to carry a traditional role. Universities can help reduce female graduate students' stress by developing creative programs, such as reduced fee on-campus childcare, or by establishing flexible course hours to help female students balance their roles. Outreach programs, such as stress management, time management, and couples' communications that include components that are sensitive to needs of female students can also educate not only women on campus, but other student population in school.

Before sensitive stress reduction strategies can be developed and implemented, it is important for psychologists to learn how each group of graduate students cope with stress. For example, the current findings suggested that while Taiwanese graduate students tend to use more maladaptive coping strategies, their psychological well-being is still greater. This may imply that coping strategies they use, although labeled as maladaptive by psychological instruments, may actually be effective for them. Therefore, in counseling settings, it is very important for psychologists to assess how each coping skill impact graduate students' psychological well-being rather than assuming a particular coping strategy is maladaptive.

In addition, it is noted that stress level is different between doctoral and master students. Current findings indicated that doctoral students reported less stress than master students. It is possible that doctoral students may be older and more mature in dealing with their stress. Also, international doctoral students may have been in the US for a few years in obtaining a master degree; therefore, cultural shock may be more stressful to master students. In addition,

master students may need education concerning American graduate school culture than doctoral students do. Perceived English skills are consistently associated with stress, coping, and psychological well-being among Asian international student population. Psychologists can first assess Asian international students' English skills to determine whether they need a referral to learning support services agencies or writing centers, or to teach them skills to increase English language self-efficacy. Type of degree pursuing and perceived English skills are two examples of many variables psychologists need to attend to when it comes to student differences. Lack of understanding in these differences may lead to early dropout in counseling treatment. The results of this study showed the complexity and the variety of responses American graduate students and three groups of Asian international graduate students reported. These findings suggest that there are between and within group differences. Specifically, Asian international graduate students are not a homogeneous group when dealing with stress, coping, and psychological well-being. The current study can help counseling psychologists provide more culturally sensitive mental health services to domestic graduate as well as Asian international graduate students to achieve a greater psychological well-being.

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Appendix

Recruiting Participants Advertisement

Dear Students,

My name is Tina Yang, a doctoral candidate in the Counseling Psychology program at the University of Kansas. I am recruiting participants for my dissertation research under the supervision of Barbara Kerr, Ph.D. This study investigates stress, coping, and psychological well-being of American graduate students and Taiwanese, Chinese, and South Korean international graduate students. If you identify yourself as an American graduate student of any race/ethnic origin, or if you are a Taiwanese, Chinese, or South Korean international graduate student, your participation in the study is much appreciated.

Please allow yourself 15-20 minutes to complete this online survey. Your participation is completely voluntary and your responses will remain anonymous and confidential to the degree permitted by the technology used. There are no foreseeable risks involved with this study. Your participation is extremely valuable and will greatly facilitate counseling psychologists and school administrators in providing better services to graduate students both domestically and internationally. Thank you very much for your valuable time. If you would like to participate in drawing one of the nine Amazon.com gift cards in the amount of two \$50s, two \$25s, and five \$10s, please send an email with the subject title "Stress and coping survey gift card" to tinayang@ku.edu Emails will be drawn randomly from the pool of emails we receive. For confidentiality, your email will not be linked to your survey responses. Your chance of receiving a gift card is not contingent upon completion of the survey.

If you have any questions regarding this research, please feel free to contact one of the investigators listed below.

Sincerely,

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Signature of Participant _____

Date _____

With my signature I acknowledge that I have received a copy of this consent form to keep.

Demographic Questions

Directions: Please check the answer which best applies to you.

1. What is your sex?
 Male Female
2. What is your age? _____
3. Are you a U.S. Citizen? Yes No
4. What is your race/ethnicity?
 American of any race/ethnicity of origin
 Taiwanese
 Chinese
 Korean
 Other, please specify: _____
5. If you are an international student, how long have you stayed in the US?
_____ year(s) and _____ month(s)
6. What type of degree are you working towards?
 Masters Doctoral
7. Which university are you attending currently?
8. What is your marital status?
 Single / Never Married
 Married or remarried
 Divorced
 Co-habiting
 Separated or Widowed
 Other (please specify: _____)
9. How many children do you have? _____ Child/ Children

Graduate Stress Inventory-Revised

Below is a list of statements describing a variety of issues that may be related to your graduate education.

If you have **never experienced** one of the events listed below, then circle number 1.

If one of the events listed below has happened to you and has caused you a great deal of stress, rate that event toward the “Extremely Stressful” end of the rating scale. If an event has happened to you while you have been in graduate school, but has not bothered you at all, rate that event toward the lower end of the scale (“Not at all Stressful”).

Circle the number next to each item to indicate how stressful each of these events has been for you since you entered your graduate program. Use the following scale:

Not at all stressful			Moderately stressful			Extremely stressful
1	2	3	4	5	6	7

- | | |
|---|---------------|
| 1) Fulfilling responsibilities both at home and at school | 1 2 3 4 5 6 7 |
| 2) Trying to meet peers of your race/ethnicity on campus | 1 2 3 4 5 6 7 |
| 3) Taking exams | 1 2 3 4 5 6 7 |
| 4) Being obligated to participate in family functions | 1 2 3 4 5 6 7 |
| 5) Arranging childcare | 1 2 3 4 5 6 7 |
| 6) Finding support groups sensitive to your needs | 1 2 3 4 5 6 7 |
| 7) Fear of failing to meet program expectations | 1 2 3 4 5 6 7 |
| 8) Participating in class | 1 2 3 4 5 6 7 |
| 9) Meeting with faculty | 1 2 3 4 5 6 7 |
| 10) Living in the local community | 1 2 3 4 5 6 7 |
| 11) Handling relationships | 1 2 3 4 5 6 7 |
| 12) Handling the academic workload | 1 2 3 4 5 6 7 |
| 13) Peers treating you unlike the way they treat each other | 1 2 3 4 5 6 7 |
| 14) Faculty treating you differently than your peers | 1 2 3 4 5 6 7 |
| 15) Writing papers | 1 2 3 4 5 6 7 |
| 16) Paying monthly expenses | 1 2 3 4 5 6 7 |
| 17) Family having money problems | 1 2 3 4 5 6 7 |
| 18) Adjusting to the campus environment | 1 2 3 4 5 6 7 |
| 19) Being obligated to repay loans | 1 2 3 4 5 6 7 |
| 20) Anticipation of finding full-time professional work | 1 2 3 4 5 6 7 |
| 21) Meeting deadlines for course assignments | 1 2 3 4 5 6 7 |

*Scale developed by Rocha-Singh

Brief COPE

There are many ways to try to deal with stress. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. This section asks you to indicate what you generally do and feel, when you experience stressful events. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

- 1 = I don't do this at all
- 2 = I do this a little bit
- 3 = I do this a medium amount
- 4 = I do this a lot

1. I turn to work or other activities to take my mind off things.
2. I concentrate my efforts on doing something about the situation I'm in.
3. I say to myself "this isn't real."
4. I use alcohol or other drugs to make myself feel better.
5. I get emotional support from others.
6. I give up trying to deal with it.
7. I take action to try to make the situation better.
8. I refuse to believe that it has happened.
9. I say things to let my unpleasant feelings escape.
10. I get help and advice from other people.
11. I use alcohol or other drugs to help me get through it.
12. I try to see it in a different light, to make it seem more positive.
13. I criticize myself.
14. I try to come up with a strategy about what to do.
15. I get comfort and understanding from someone.
16. I give up the attempt to cope.
17. I look for something good in what is happening.
18. I make jokes about it.
19. I do something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I accept the reality of the fact that it has happened.
21. I express my negative feelings.
22. I try to find comfort in my religion or spiritual beliefs.
23. I try to get advice or help from other people about what to do.
24. I learn to live with it.
25. I think hard about what steps to take.
26. I blame myself for things that happened.
27. I pray or meditate.
28. I make fun of the situation.

General Health Questionnaire-12 (GHQ-12)

Please consider the last four weeks and answer the following questions by circling the number that best applies to you.

- 1= Less than usual 0
- 2= No more than usual 1
- 3= Rather more than usual 2
- 4= Much more than usual 3

Have you recently?

1. Been able to concentrate on what you're doing
2. Lost much sleep over worry
3. Felt you were playing a useful part in things
4. Felt capable of making decisions about things
5. Felt constantly under strain
6. Felt you couldn't overcome your difficulties
7. Been able to enjoy your normal day-to-day activities
8. Been able to face up to your problems
9. Been feeling unhappy and depressed
10. Been losing confidence in yourself
11. Been thinking of yourself as a worthless person.
12. Been feeling reasonably happy, all things considered

