

Georgia State University

ScholarWorks @ Georgia State University

Counseling and Psychological Services
Dissertations

Department of Counseling and Psychological
Services

1-8-2016

Perfectionism, Acculturative Stress, Coping Styles, and Depression among International Students.

Yi-Shi Hsiao

Follow this and additional works at: https://scholarworks.gsu.edu/cps_diss

Recommended Citation

Hsiao, Yi-Shi, "Perfectionism, Acculturative Stress, Coping Styles, and Depression among International Students.." Dissertation, Georgia State University, 2016.

doi: <https://doi.org/10.57709/7945747>

This Dissertation is brought to you for free and open access by the Department of Counseling and Psychological Services at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Counseling and Psychological Services Dissertations by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

ACCEPTANCE

This dissertation, PERCEPTIONS, ACCULTURATIVE STRESS, COPING STYLES, AND DEPRESSION AMONG INTERNATIONAL STUDENTS, by YI-SHI HSIAO, was prepared under the direction of the candidate's Dissertation Advisory Committee. It is accepted by the committee members in partial fulfillment of the requirements for the degree, Doctor of Philosophy, in the College of Education and Human Development, Georgia State University.

The Dissertation Advisory Committee and the student's Department Chairperson, as representatives of the faculty, certify that this dissertation has met all standards of excellence and scholarship as determined by the faculty.

Jeff Ashby, Ph.D.
Committee Chair

Greg Brack, Ph.D.
Committee Member

Kenneth Rice, Ph.D.
Committee Member

Hongli Li, Ph.D.
Committee Member

Date

Brian J. Dew, Ph.D.
Chairperson, Department of Counseling and Psychological Services

Paul A. Alberto, Ph.D.
Dean
College of Education and Human Development

AUTHOR'S STATEMENT

By presenting this dissertation as a partial fulfillment of the requirements for the advanced degree from Georgia State University, I agree that the library of Georgia State University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote, to copy from, or to publish this dissertation may be granted by the professor under whose direction it was written, by the College of Education and Human Development's Director of Graduate Studies, or by me. Such quoting, copying, or publishing must be solely for scholarly purposes and will not involve potential financial gain. It is understood that any copying from or publication of this dissertation which involves potential financial gain will not be allowed without my written permission.

Yi-Shi Hsiao

NOTICE TO BORROWERS

All dissertations deposited in the Georgia State University library must be used in accordance with the stipulations prescribed by the author in the preceding statement. The author of this dissertation is:

Yi-Shi Hsiao
1429 Wembley CT NE
Atlanta, GA 30329

The director of this dissertation is:

Dr. Jeff Ashby
Department of Counseling and Psychological Services
College of Education and Human Development
Georgia State University
Atlanta, GA 30303

CURRICULUM VITAE

Yi-Shi Hsiao

ADDRESS: 1429 Wembley CT NE
Atlanta, GA 30329

EDUCATION:

Ph.D.	2015	Georgia State University Counseling Psychology
M.Ed.	2002	University of Missouri-St. Louis Counseling
B.A.	1995	Tamkang University Economics

PROFESSIONAL EXPERIENCE:

2012-2014	Counselor Warm Life Association Kaohsiung, Taiwan
2011-2012	Pre-doctoral Intern National Kaohsiung Normal University Counseling Center Kaohsiung, Taiwan

PRESENTATIONS AND PUBLICATIONS:

Hsiao, Y.-S., Ashby, J. S., Gnilka, P. B., & Noble, C. (2011, August). *Acculturation, acculturative stress, social support, and career outcome expectations among international students*. Poster session presented at the American Psychological Association Annual Conference, Washington, DC.

Hsiao, Y.-S. (2005, February). *Counseling Asian Americans with Family Systems Theory*. Paper presented at the Convention of South Carolina Counseling Association, Myrtle Beach, SC.

Hsiao, Y.-S. (2007, April). *Negotiating the Journey: An International Student's Perspective*. Panel discussion participant at Afternoon with Sojourners: Bridging the Gap between Cultures, Georgia State University, Atlanta, GA.

Hsiao, Y.-S. (2005, Spring). *AGLBIC Competencies for Counseling Gay, Lesbian, Bisexual and Transgendered (GLBT) Clients*. Translated into Chinese. <http://www.algbtic.org/competencies.html>

PROFESSIONAL SOCIETIES AND ORGANIZATIONS

2005 – Present

American Psychological Association

2005 – Present

Taiwan Psychology Network

PERFECTIONISM, ACCULTURATIVE STRESS, COPING STYLES, AND DEPRESSION
AMONG INTERNATIONAL STUDENTS

by

YI-SHI HSIAO

Under the Direction of Dr. Jeff Ashby

ABSTRACT

The present study examined whether adaptive and maladaptive perfectionism, acculturative stress, and three coping strategies (reflective, suppressive, and reactive) have interaction effects in predicting depression. Data were collected from 789 international students at seventeen different college campuses across the United States using an online survey. Results from hierarchical regression analyses indicated that there were significant main effects for adaptive perfectionism, maladaptive perfectionism, acculturative stress, and three coping strategies. Results also indicated that there were four significant two-way interactions among the variables in the prediction of depression. Ineffective coping (suppressive and reactive) moderated the relationship between acculturative stress and depression. Maladaptive perfectionism moderated the relationship

between acculturative stress and depression. Reflective coping moderated the relationship between maladaptive perfectionism and depression only for students with relatively higher maladaptive perfectionism. There were no significant three-way interactions among the variables in the prediction of depression. Implications for counseling and future research suggestions are discussed.

INDEX WORDS: International students, Perfectionism, Stress, Coping, Depression

PERCEPTIONS, ACCULTURATIVE STRESS, COPING STYLES, AND DEPRESSION
AMONG INTERNATIONAL STUDENTS

by

YI-SHI HSIAO

A Dissertation

Presented in Partial Fulfillment of Requirements for the

Degree of

Doctor of Philosophy

in

Counseling Psychology

in

Department of Counseling and Psychological Services

in

the College of Education and Human Development

Georgia State University

Atlanta, GA
2015

Copyright by
Yi-Shi Hsiao
2015

ACKNOWLEDGMENTS

If pursuing a doctoral degree is a journey, I think that I spent much more time than most people on the same journey to reach the end. I thought about giving up, but I didn't. Because of your encouragement, your support, and especially your prayers, I had reasons to keep moving forward, overcame the obstacles, and passed the finish line. With the degree, I believe that I can help more people, like the meaning of my name that is to serve people more. If I can say that I have a small achievement in the future, I would attribute to you and I need to say thank you to all of you.

To my advisor and dissertation chair, Dr. Jeff Ashby: Thank you for challenging me, supporting me, and for being patient with me for a long-long time. Without your help and encouragement, I don't think that I could have finished my dissertation. You are always the role model in my professional development. To my committee members, Dr. Greg Brack, Dr. Hongli Li, and Dr. Ken Rice: Thank you for your thoughtful feedback, time, and attention on my work.

To my cohort and colleagues, Abby Myers, Courtney Chambless, Lydia Odenat, Jessica Kordansky, Wendy Heath-Gainer: You are the best cohort ever. I will bring your friendship and support with me when I return to Taiwan.

To my parents, Chi-Tien Hsiao and Li-Chu Tsai: I thank you for your love, support, and constant prayers. You have given me the freedom and carefreeness to pursue the degree in other side of the world. Not being able to be around you for many years is my lifelong indebtedness to you.

Lastly, I would like to thank God for all He has given and entrusted to me in this lifetime. My life and career are in Your hands.

TABLE OF CONTENTS

LIST OF TABLES.....	IV
LIST OF FIGURES.....	V
1 PERFECTIONISM AND DEPRESSION: INDIVIDUAL DIFFERENCE EFFECTS ON STRESS AND COPING IN INTERNATIONAL STUDENTS.....	1
Introduction	1
Personality and Stress Coping.....	6
Personality and Perfectionism.....	10
Perfectionism and Stress Coping.....	13
Conclusions	15
References	18
2 PERFECTIONISM, ACCULTURATIVE STRESS, COPING STYLES, AND DEPRESSION AMONG INTERNATIONAL STUDENTS	26
Introduction	26
Method	30
Results	38
Discussion	44
Limitation and Future Research	48
Implications for Counseling.....	50
References	61

LIST OF TABLES

Table 1. Descriptive Statistics, Intercorrelations, and Scale Alphas for Study Variables	52
Table 2. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Reflecting Coping, and Their Interactions	53
Table 3. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Suppressive Coping, and Their Interactions	54
Table 4. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Reactive Coping, and Their Interactions	55
Table 5. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Reflecting Coping, and Their Interactions	56
Table 6. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Suppressive Coping, and Their Interactions	57
Table 7. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Reactive Coping, and Their Interactions	58

LIST OF FIGURES

Figure 1. The interaction effect of acculturative stress and suppressive coping on depression. ..	59
Figure 2. The interaction effect of acculturative stress and reactive coping on depression.	59
Figure 3. The interaction effect of acculturative stress and maladaptive perfectionism on depression.	60
Figure 4. The interaction effect of reflective coping and maladaptive perfectionism on depression.	60

1 PERFECTIONISM AND DEPRESSION: INDIVIDUAL DIFFERENCE EFFECTS ON STRESS AND COPING IN INTERNATIONAL STUDENTS

Introduction

The size of the international student population in U.S. universities and colleges has been continuously growing since the 1950s. During the sixty-four-year period from 1951 to 2014, only four years (1971/72, 2003/04, 2004/05, and 2005/06) had decreases in enrollments of international students, which might be due to the impact of the energy crisis and the 911 tragedy. The number of international students has increased by 29 times from 29,813 in 1950/51 to 886,052 in 2013/14. In 2013-14, students from the top three places of origin, including China, India and South Korea, comprised about 50% of the total international enrollments in U.S. higher education. Saudi Arabia, Canada, Taiwan, Japan, Mexico, Vietnam, and Brail each represented approximately two to six percent of the total international student population, with these top ten places of origin comprising 68 percent of the total international student population (Institute of International Education, 2014). International students also brought more than \$27 billion into the U.S. economy in living experiences, tuition, and fees. Open Doors (2014) reported that about 74 percent of all international students receive the majority of their funds from sources outside of the United States. These international students represented more than 180 places of origin, enriching the cultural diversity of U.S. higher education environments by bringing their ethnic heritages, languages, and worldview perspectives. The financial funds they brought have also had a profound impact on the U.S. economy. Therefore, facilitating a smooth adjustment process and a positive educational experience is an important interest and concern in higher education (Hyun, Quinn, Madon, & Lustig, 2007; McLachlan & Justice, 2009; Tidwell & Hanassab, 2007).

Despite their differences in country of origin, international students may be appropriately considered as a specific minority group. Mori (2000) noted that the size of this population and their common characteristics justify their being treated as a group, regardless of their diverse cultural, social, linguistic, religious backgrounds. For example, unlike other ethnic minorities and immigrants, most of the international students come to the U.S. for study temporarily and tend to return to their home countries eventually. They are people in a transition stage who would like to fulfill their educational goals in a foreign academic setting. In order to pursue academic success, they also have to learn to negotiate rapidly the demands of everyday living, communication, and behavior. In addition, because international students are far from their families and friends, they are forced to develop unique mechanisms of obtaining needed social support, including simultaneously maintaining the important support sources at home and establishing new support systems in the U.S. (Walton, 1990). As a result, some international students will experience psychological distress.

Given the various sources of stress that international students face in order to adjust to the new educational and social environment, Tseng and Newton (2002) identified four types of challenges faced by international students: (1) general living adjustment, such as getting used to American living style, food, environment, transportation, and weather and dealing with financial problems and health conditions; (2) academic adjustment, such as increasing proficiency in the English language, getting familiar with the American university system and acquiring the skills for academic success; (3) sociocultural adjustment, such as learning appropriate social norms, behaviors, regulations, and social activities and dealing with conflicts between American host standards (or values, world views, life styles) and those of home country; (4) personal psycho-

logical adjustment, such as dealing with feelings of homesickness, loneliness, frustration, depression, feelings of social isolation, the loss of identity, and feelings of worthlessness. The difficulties of adjusting to these challenges in a new culture may cause some level of acculturative stress. Numerous authors (e.g., Mori, 2000) have suggested that acculturative stress is related to depression which is the most common psychological issue among international students.

Berry, Kim, Minde, and Mok (1987) have noted that acculturative stress is one of the natural consequences of stress from the process of acculturation. Kosic (2004) identified several factors that may explain the level of acculturative stress including features of the original and host society (e.g., cultural, economic, political, social, and etc.) and individual characteristics. The individual characteristics that may influence acculturative stress include a number of demographic variables (e.g., age, gender, years of education, marital status, language proficiency, length of sojourn, and etc.) and personality characteristics (e.g., self-esteem, locus of control, coping styles, and etc.). Acculturative stress also refers to difficult experiences in the process of acculturation and is related to psychological distress (Berry, 1998; Constantine, Okazaki, & Utsey, 2004; Crockett et al., 2007; Wei et al., 2007) and career outcome expectation (Hsiao, Ashby, Gnilka, & Noble, 2011; Reynolds & Constantine, 2007). For international students, depression is the manifest symptom of acculturative stress (Mori, 2000) and depression is also one of the most common presenting concerns for which international students come to university counseling centers (Nilsson, Berkel, Flores, & Lucas, 2004; Yi, Lin, & Kishimoto, 2003). Research has shown that acculturative stress is positively associated with depression among international student population (e.g., Constantine et al., 2004; Lee, Koeske, & Sales, 2004; Wei et al., 2007; Yang & Clum, 1995; Ying & Han, 2006).

Acculturative stress and personality

There is a significant body of literature that has investigated the relationship between acculturative stress and personality among different cultural groups. For instance, Duru and Poyrazli (2007) found that two personality traits significantly contributed to the variance in acculturative stress in Turkish international students. Neuroticism positively predicted acculturative stress. Openness to experience also predicted acculturative stress, a finding that was inconsistent with the researchers' hypotheses. They noted that those Turkish students who are more open to new experiences might be more likely to take advantage of more opportunities to have contact with their new culture. The authors went on to speculate that this increased amount of contact might create higher levels of acculturative stress. In Mangold and her colleagues' study (2007), the results revealed that acculturative stress was predicted by neuroticism in Mexican American college students. In their sample, the more specific personality facets of angry hostility and vulnerability were the strongest predictors of acculturative stress. Their findings also supported the contention that neuroticism and hostility mediate the relationship between perceived discrimination and depression. Ward, Leong, and Low (2004) investigated the relationship between Big Five personality traits and adjustment of sojourners in Australia and Singapore. They found that neuroticism and extraversion were related to psychological and sociocultural adaptation in both samples. Sojourners with greater extraversion and less neuroticism tend to adjust better to the cross-cultural environment and cope more effectively with acculturative stress.

Other researchers have examined the relationship between attachment styles and levels of acculturative stress. In one study, Belizaire and Fuertes (2011) examined this relationship in a sample of 155 Haitian immigrants recruited from the New York City and Miami metropolitan

areas. The results of their study indicated that anxiety attachment, but not avoidance attachment, was significantly associated with acculturative stress. Participants who had an excessive need for self-reliance and a fear of interpersonal intimacy or dependence tended to experience more acculturative stress. In other words, immigrants who have difficulty seeking interpersonal closeness with attachment figures would possibly experience higher levels of acculturative stress and lower levels of quality of life. In another study, Wang and Mallinckrodt (2006) explored the relationship of attachment and acculturation to adjustment difficulties and psychological distress in a sample of Chinese/Taiwanese international students. . The results indicated that anxiety attachment was positively associated with international students' psychological stress and avoidance attachment was positively associated with sociocultural adjustment difficulties. These findings suggested that international students with low anxiety attachment and low avoidance attachment may cope more effectively with acculturative stress.

Acculturative stress and coping

A number of studies have investigated the role of coping in dealing with acculturative stress. For instance, Belizaire and Fuertes (2011) found that, among Haitian immigrants, those who used maladaptive coping strategies (e.g., self-distraction, substance use) had higher levels of acculturative stress. In contrast, adaptive coping, generally operationalized as using positive strategies like positive reframing, humor, planning, emotional and instrumental supports, was a significant negative predictor of acculturative stress. In a related study, Akhtar and Kröner-Herwig (2015) investigated how different coping styles are associated with the level of acculturative stress among international students in Germany. Three styles of coping were all found to significantly predict acculturative stress. Suppressive and reactive coping styles were less productive strategies in dealing with acculturative stress and were the positive predictors of acculturative

stress. In contrast, reflective coping was a favorable coping style in that it was inversely associated with acculturative stress.

Recent researchers have investigated the role of coping as a moderator or mediator in predicting acculturative stress. Crockett et al. (2007) found that active coping moderated the relationship between acculturative stress and depression among Mexican American college students. The interaction between active coping and acculturative stress significantly predicted depressive symptoms. Specifically, they found that active coping buffered the effects of high acculturative stress on depressive symptoms. In an additional study investigating coping, acculturative stress, and depression, Driscoll and Torres (2013) found that active coping partially mediated the relationship between acculturative stress and depression symptoms among Latino adults. Their results indicated that participants' acculturative stress level was associated with lower active coping strategy. In turn, their lower levels of active coping were associated with more severe depression symptoms. In a similar study, Torres (2010) investigated the relationship of acculturation, acculturative stress, and coping in predicting depression in a sample of Latino adults. The results indicated that the interaction of higher acculturative stress and lower active coping was significantly related to higher depression. In contrast, higher levels of active coping appeared to function as a protective factor for depression.

Personality and Stress Coping

Personality is often defined as the particular combination of emotional, attitudinal, and behavioral response patterns of an individual over time and across situations. The five-factor model is one of the most prominent conceptualizations of personality and includes the "Big Five" traits of Neuroticism (N), Extraversion (E), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O) (McCrae et al., 2000). A large body of research has been conducted

with samples from numerous countries. The results of these studies have shown that these traits are relatively stable across groups and cultures (McCrae, Costa, Del Pilar, Rolland, & Parker, 1998).

Traditionally, coping has been described as “personality in action under stress” (Bolger, 1990, p. 525) and numerous theorists have referred to coping as a personality or an individual difference variable (e.g., Ptacek & Gross, 1997). Consistent with this view, numerous researchers consider coping a stable trait that influences the individual’s perceptions of stressful life events and consistently determines the individual’s responses to stress (McCrae & Costa, 1986). Furthermore, studies have suggested that preferred coping styles are consistently associated with the Big Five traits such as Neuroticism and Extraversion (Suls, David, & Harvey, 1996). These results suggest that certain personality characteristics may predispose people to cope in certain ways when they are facing stressful situations. For example, Extraversion is correlated with the use of more effective coping styles such as seeking supports and positive thinking, whereas Neuroticism is correlated with the use of more ineffective coping styles such as wishful thinking, distancing, and suppression. However, other researchers in the coping field have proposed that an individual’s coping responses are influenced by both dispositional and situational variables (Carver, Scheier, & Weintraub, 1989; Lazarus & Folkman, 1984).

Lazarus and his colleagues proposed a process-based theory that conceptualize coping as a transactional process between the individual and the environment, with more emphasis on the coping process than on the personality traits of the individual (Folkman & Lazarus, 1980, 1985). Their model highlights the importance of the individual’s appraisal of the situation as opposed to the emphasis of the role of personality in the coping process. In this process model, coping is considered a dynamic process that changes according to the situation and the appraisal of the

stressful events made by individuals, rather than conceptualizing coping as a personality trait that is consistently applied across situations.

Folkman and Lazarus (1980) have argued that personality traits in the process of coping do not show cross-situational consistency. Nonetheless, evidence exists of consistency and stability in coping styles over time and across different situations (Bolger & Schilling, 1991).

Approaches to the Conceptualization of Coping

In classic stress-coping theory, coping strategies play an essential role in the stress-adjustment relation. Lazarus and Folkman (1984) argued that stress consists of three processes. Primary appraisal is the process of perceiving a threat, challenge, or loss. Secondary appraisal is the process of generating a potential response to the threat. Coping is the process of executing the response. Coping can be broadly defined as cognitive and behavioral efforts that are utilized by individuals with the intention of reducing the effects of stress (Lazarus & Folkman, 1984; Terry, 1994). Three major approaches to the conceptualization of coping are frequently mentioned in the literature (Folkman & Lazarus, 1980; Terry, 1991). The first approach conceptualizes coping in terms of ego processes. This perspective considers coping as a defense system that can be used to reduce tension and restore emotional equilibrium.

The second of these approaches conceptualizes coping as a dispositional personality trait. Research has argued that this view overlaps with the first conceptualization and is derived from the historical Freudian concept of defense mechanisms (e.g., Folkman & Lazarus, 1980). From this perspective, coping styles or dispositions are stable over time and are applied to all stressful situations that people encounter. This means that people do not generate new approaches to each coping context, but rather carry a preferred set of coping strategies that remains relatively consistent across situations and time (Carver et al., 1989).

The paradigm of stable coping styles has been controversial. One of the main criticisms of the dispositional approach is the lack of empirical evidence that personality traits predict coping processes in stressful transactions. Lazarus and Folkman (1984) argued that “These attempts grossly simplify complex patterns of coping into unidimensional schemes such as repression-sensitization which have little explanatory and predictive value for what the person actually does in particular contexts” (p. 178). Ptacek and Gross (1997) proposed two reasons for the lack of support in the literature for the dispositional coping approach. First, when Lazarus and Folkman were explicating their theoretical coping perspective, most dispositional measures were developed to only assess one dimension. However, almost all current researchers, no matter how they conceptualize coping would agree that coping is not unidimensional. Second, nearly all dispositional measures collect data using a self-report format and methodology. Instead of asking participants how they typically cope with each of several hypothetical situations, dispositional measures ask participants how they use specific thoughts and behaviors to deal with stressful situations generally.

The third approach views coping as a dynamic process, a transaction between person and stress across situations. This view suggests that the person and the environment are in an ongoing relationship, meaning that people change responses with changing circumstances, in contrast to a fixed coping style that would circumscribe individuals’ freedom and flexibility to respond differently at different phases of the stressful transaction. Proponents of this view (e.g., Lazarus & Folkman, 1984) defined coping as “Constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Lazarus & Folkman argued that coping is process-oriented rather

than trait-oriented. Their definition limits coping to demands that are appraised as taxing or exceeding a person's resources and to conditions of psychological stress that requires mobilization in spite of automatized behaviors and thoughts. In other word, the main difference from the dispositional approach is that the transactional approach is not to understand what a person typically does, but rather to understand what a person did, or is currently doing, to deal with a stressful event.

In summary, the dispositional approach, which dominated the research in the coping field through the 1970s, was superseded by the transactional approach in the 1980s. Researchers appear now to be aware of the utility of both approaches and apply both approaches to the context of empirical investigations (Carver & Scheier, 1994; Terry, 1991).

Personality and Perfectionism

Individual differences are important factors in determining how much acculturative stress international students experience (Oei & Notowidjojo, 1990). Acculturative stress contributes to international students' psychological concerns and overall stress levels (Constantine et al., 2004; Crockett et al., 2007; Wei et al., 2007). There is a large range of individual differences variables that appear be related to the stress coping process. These variables include optimism, sex-role orientation, locus of control, self-efficacy, self-esteem, extraversion, neuroticism, self-confidence, and perfectionism (e.g., Gnilka, Ashby, & Noble, 2012; Parkes, 1994; Ptacek & Gross, 1997).

Historically, perfectionism has often been conceptualized as a pervasive neurotic style and considered a negative attribute contributing to individuals' psychological disturbances (Adler, 1956; Hamachek, 1978; Pacht, 1984). Consistent with this view, a number of researchers have found that perfectionism was associated with a number of psychological problems, such as

depression (K. T. Wang, Yuen, & Slaney, 2009; Wei, Heppner, Russell, & Young, 2006), suicidal ideation (Chang, 1998), and anxiety (Alden & Bieling, 1994). In contrast to these findings, Hamachek (1978) made a distinction between what he called normal and neurotic perfectionism. He suggested that adaptive perfectionists are more likely to be realistic and reasonable in their self-expectations taking strengths and limitations into consideration, with strivings accompanied by a sense of satisfaction and enhanced self-esteem. In contrast, maladaptive perfectionists are characterized by the setting of unattainable goals, a fear of failure, and the perception of conditional positive approval. Frost, Heimberg, Holt, Mattai, and Neubauer's (1993) description of adaptive and maladaptive perfectionism and Terry-Short, Owens, Slade, and Dewey's (1995) proposition of positive or negative perfectionism are consistent with this two-dimensional view of perfectionism. A number of researchers have investigated Hamachek's (1978) conception of perfectionism and, in several studies, offer support for a positive aspect (e.g., Suddarth & Slaney, 2001). This positive aspect of perfectionism has been associated with self-esteem (Ashby & Rice, 2002) and satisfaction with life (Ashby, Noble, & Gnilka, 2012).

A number of researchers have developed measures to assess the dimensions of perfectionism. Frost, Marten, Lahart, and Rosenblate (1990) proposed six components of perfectionism including personal standards, concern over mistakes, doubts about actions, organization, parental expectations, and parental criticisms. Personal standards is related to the setting of high standard of one's performance. Concern over mistakes involves the setting high standard first and overly critical evaluation of one's performance. Doubts about actions is the uncertainty about the quality of one's performance. Organization refers to the emphasis on order and precision. The last

two subscales of parental expectations and parental criticisms describe perceptions about the expectations parents have for the individual and the fear of failure to meet the expectations can result in loss of acceptance (Cox & Enns, 2003).

Hewitt and Flett (1991) conceptualized and measured perfectionism across three dimensions including self-oriented, other-oriented, and socially-prescribed perfectionism. Self-oriented perfectionism refers to the setting excessively high standards and perfectionistic self-motivation. Other-oriented perfectionism is defined as having unrealistically high standards of performance for others. Socially-prescribed perfectionism is the perception that other people have extremely high standards for oneself (Cox & Enns, 2003).

Emphasizing a clearer distinction between adaptive and maladaptive perfectionism, Slaney and his colleagues (2001) developed the Almost Perfect Scale-Revised (APS-R). These researchers distinguished between standards, discrepancy, and order. The standards dimension is designed to assess the holding of high personal standards for performance. The discrepancy dimension represents the difficulty a person may experience when there is a gap between performance and desired standards. Order is a desire for orderliness and organization.

In the past decade, numerous empirical investigations have offered support for the notion that perfectionism is better understood as having both adaptive and maladaptive aspects of functioning (e.g., Stoeber & Otto, 2006). In addition, researchers have identified distinctive groups of maladaptive, adaptive, and non-perfectionists (e.g., Rice & Ashby, 2007). Consistent with the results of these studies, a number of empirical instruments have been developed to assess the multidimensional conceptualization of perfectionism and to identify the adaptive or maladaptive perfectionists and non-perfectionists. Additional studies have consistently found differences among these groups in a variety of areas including coping (Gnilka et al., 2012).

Perfectionism and Stress Coping

Hamachek's (1978) early theoretical work, along with more recent empirical work (e.g., Rice & Ashby, 2007), are consistent with the view that both adaptive and maladaptive perfectionists have high expectations for themselves. These high expectations and standards may be a source of stress. Although adaptive perfectionists are more realistic and more likely to adjust their goals according to the actual performance, both maladaptive and adaptive perfectionists may experience striving for high expectations as stressful. One difference between these types of perfectionists may be in the copying they employ. For instance, using a positive strategy to cope with stress can reduce the impacts of stress on mental health and eventually lead to better adjusted individuals. Coping strategies are used to manage the stressful situations and individuals differentiate from one another in terms of positive and negative coping strategies (Lazarus & Folkman, 1984). There is some empirical evidence that coping styles or strategies can both mediate and moderate the relationship between perfectionism and psychological concerns such as depression.

The results of several research studies have provided evidence for the mediational role of coping. Wei et al. (2006) found that ineffective coping mediated the relationship between maladaptive perfectionism and depression. In other related study, Dunkley, Blankstein, Halsall, Williams, & Winkworth (2000) examined the roles of hassles, avoidant and active coping, and social support in the relationship between adaptive and maladaptive perfectionism and distress symptoms. The authors found that avoidant coping served as a mediator between maladaptive perfectionism and distress. In addition, the results revealed a significant association between adaptive perfectionism and active coping, but no mediational relationship were found. Similar to the study of Dunkley et al. (2000) and Gnilka et al. (2012) investigated the relationship between two forms

of perfectionism (adaptive and maladaptive), anxiety, and coping processes. The results revealed no mediational role of coping processes between adaptive perfectionism and anxiety. However, they found one type of healthy coping and three types of unhealthy coping mediated the relationship maladaptive perfectionism and anxiety.

While a number of studies have been conducted to investigate the relationship between both adaptive and maladaptive perfectionism, coping, and psychological distress, relatively few have found a significant mediational role for coping in the relationship of adaptive perfectionism and psychological distress. One study of note (Noble, Ashby, & Gnilka, 2014) examined the relationship between multidimensional perfectionism, coping, depression in a sample of 405 college students. The authors found that avoidant coping mediated the relationship between maladaptive perfectionism and depression, but also mediated the relationship between adaptive perfectionism and depression.

Despite the growing number of studies investigating perfectionism, coping, and psychological distress, few studies have explored the relationship between perfectionism, coping, and psychological distress among different racial groups. Park, Heppner, and Lee (2010) did investigate the mediational effects of maladaptive coping styles and self-esteem on the relationship between perfectionism and psychological distress among Korean college students. The results of their study suggested that maladaptive coping served as a mediator between maladaptive form of perfectionism and distress. In a related study with a sample of 412 Chinese undergraduate students, Zhang and Cai (2012) explored the roles of negative coping and positive coping as mediators of the relationship between maladaptive perfectionism and depression. The authors discovered that negative coping and positive coping both mediated the association between maladaptive perfectionism and depression.

Conclusions

International students share a similar challenge of acculturation even though they might be coming from different countries with different cultural and religious backgrounds (Tseng & Newton, 2002). Since international students come to the U.S. to pursue academic degrees, they face different adjustment difficulties than other ethnic minorities who migrate to or seek refuge in the U.S.; they deal with issues related to their temporary residence in the U.S. and the need to succeed in the U.S. academic system (Mori, 2000). With these somewhat unique characteristics, international students can be categorized into a minority group who encounter similar acculturative stress and related psychological distress.

In recent years, a significant body of research has focused on the mental health concerns and adjustment problems of international students (e.g., Hyun, Quinn, Madon, & Lustig, 2007; McLachlan & Justice, 2009; Mori, 2000; Sümer, Poyrzli, & Grahame, 2008). A number of studies (e.g., Mori, 2000) have also indicated that international students tend to experience more psychological problems than domestic students and are far more likely than domestic students to terminate therapeutic relationships prematurely. The results of recent studies (e.g., Wei, Ku, Russell, Mallinckrodt, & Liao, 2008) suggest that focusing on the relationships between international students' specific acculturative stress, personality traits, coping, and psychological distress can provide helpful information for college counselors while counseling international students.

Implications for College Counselors

The discussion of theoretical and empirical work related to acculturative stress and international students has several implications for college counselors. First, college counselors should be particularly sensitive to international students' levels of acculturative stress and work to clarify the sources of stress in students' lives. When international students come for help and present

distress, carefully assessing their concerns and levels of stress will help college counselors to establish a stronger therapeutic alliance empathizing with the stressors encountered. In addition, after assessing, counselors can more quickly develop a therapeutic plan that acknowledges the interactions between clients' personality traits, coping strategies, and psychological distress. College counselors may want to pay particular attention to the Big Five personality traits of their international student clients. Assessing for neuroticism, extraversion, and openness to experience in particular may give insights into clients' levels of acculturative stress (Duru & Poyrazli, 2007; Mangold et al., 2007; Ward et al., 2004). The Big Five personality traits of clients may also relate to their coping styles and may predispose them to cope with stress in certain ways (Suls et al., 1996). When college counselors encounter high achieving international students, they may also want to investigate whether their clients are inclined toward a more adaptive or maladaptive form of perfectionism. Clients with different forms of perfectionism may have different ways to deal with psychological distress (Noble et al., 2014). If an international student client had a tendency to pursue very high personal standards, it might be particularly important to differentiate between an adaptive and maladaptive form of perfectionism. Clients who have an inclination toward adaptive perfectionism often use more effective coping strategies (e.g., self-controlling, seeking social support, planful problem solving) and college counselors could encourage clients to continue using. When college counselors see maladaptively perfectionistic clients, it might be important to note these clients' inclination to adopt more ineffective coping strategies (e.g., confrontative, distancing, escape-avoidance). Especially since a number of studies suggest that these ineffective coping strategies mediate the relationship between maladaptive perfectionism and depression (Dunkley et al., 2000; Gnilka et al., 2012; Noble et al., 2014; Wei et al., 2006). College

counselors may want to help their maladaptive perfectionist clients see their negative coping strategies and lead them to acquire new sets of positive coping strategies.

While there is a growing body of research focused on exploring the relationship between perfectionism, coping, and depression among American college students and foreign college students (e.g., Noble et al., 2014; Zhang & Cai, 2012), these studies have typically not included international students in the U.S. as research participants. This lack of inclusion of international students raises questions about the generalizability of the results of these studies to international students. More research on how international students cope with their psychological distress based on the interactions between personality traits and coping styles or strategies could be helpful for college counselors to expand their multicultural competencies and to reduce the rate of premature termination. However, the current research does offer direction for meeting the needs of international students, especially as they encounter the acculturative stress endemic to the sojourner experience.

References

- Adler, A. (1956). The neurotic disposition. In H. L. Ansbacher & R. R. Ansbacher (Eds.), *The individual psychology of Alfred Adler* (pp. 239–262). New York: Haper.
- Akhtar, M., & Kröner-Herwig, B. (2015). Acculturative stress among international students in context of socio-demographic variables and coping styles. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*.
- Alden, L. E., & Bieling, P. J. (1994). Perfectionism in an interpersonal context: A self-regulation analysis of dysphoria and social anxiety. *Cognitive Therapy & Research*, 18(4), 297–316.
- Ashby, J. S., Noble, C. L., & Gnilka, P. B. (2012). Multidimensional perfectionism, depression, and satisfaction with life: Differences among perfectionists and tests of a stress-mediation model. *Journal of College Counseling*, 15(2), 130–143.
- Ashby, J. S., & Rice, K. G. (2002). Perfectionism, Dysfunctional Attitudes, and Self-Esteem: A Structural Equations Analysis. *Journal of Counseling & Development*, 80(2), 197.
- Belizaire, L. S., & Fuertes, J. N. (2011). Attachment, coping, acculturative stress, and quality of life among Haitian immigrants. *Journal of Counseling & Development*, 89(1), 89–97.
- Berry, J. W. (1998). Acculturative stress. In P. B. Organista, K. M. Chun, & G. Marín (Eds.), *Readings in ethnic psychology*. (pp. 117–122). Florence, KY US: Taylor & Frances/Routledge.
- Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review*, 21(3), 491–511.
- Bolger, N. (1990). Coping as a personality process: A prospective study. *Journal of Personality and Social Psychology*, 59(3), 525–537.

- Bolger, N., & Schilling, E. A. (1991). Personality and the problems of everyday life: The role of neuroticism in exposure and reactivity to daily stressors. *Journal of Personality*, *59*(3), 355–386.
- Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology*, *66*(1), 184–195.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*(2), 267–283.
- Chang, E. C. (1998). Cultural differences, perfectionism, and suicidal risk in a college population: Does social problem solving still matter? *Cognitive Therapy and Research*, *22*(3), 237–254.
- Constantine, M. G., Okazaki, S., & Utsey, S. O. (2004). Self-concealment, social self-efficacy, acculturative stress, and depression in African, Asian, and Latin American international college students. *American Journal of Orthopsychiatry*, *74*(3), 230–241.
- Cox, B. J., & Enns, M. W. (2003). Relative stability of dimensions of perfectionism in depression. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, *35*(2), 124–132.
- Crockett, L. J., Iturbide, M. I., Torres Stone, R. A., McGinley, M., Raffaelli, M., & Carlo, G. (2007). Acculturative stress, social support, and coping: Relations to psychological adjustment among Mexican American college students. *Cultural Diversity and Ethnic Minority Psychology*, *13*(4), 347–355.
- Driscoll, M. W., & Torres, L. (2013). Acculturative stress and Latino depression: The mediating role of behavioral and cognitive resources. *Cultural Diversity and Ethnic Minority Psychology*, *19*(4), 373–382.

- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*(4), 437–453.
- Duru, E., & Poyrazli, S. (2007). Personality dimensions, psychosocial-demographic variables, and English language competency in predicting level of acculturative stress among Turkish international students. *International Journal of Stress Management, 14*(1), 99–110.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health & Social Behavior, 21*(3), 219–239.
- Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48*(1), 150–170.
- Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*(1), 119–126.
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*(5), 449–468.
- Gnilka, P. B., Ashby, J. S., & Noble, C. M. (2012). Multidimensional perfectionism and anxiety: differences among individuals with perfectionism and tests of a coping-mediation model. *Journal of Counseling & Development, 90*(4), 427–436.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology: A Journal of Human Behavior, 15*(1), 27–33.

- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*(3), 456–470.
- Hsiao, Y.-S., Ashby, J. S., Gnilka, P. B., & Noble, C. (2011, August). *Acculturation, acculturative stress, social support, and career outcome expectations among international students*. Poster session presented at the American Psychological Association Annual Conference, Washington, DC.
- Hyun, J., Quinn, B., Madon, T., & Lustig, S. (2007). Mental health need, awareness, and use of counseling services among international graduate students. *Journal of American College Health, 56*(2), 109–118.
- Institute of International Education. (2014). *Open Doors 2014: Reports on international education exchange*. New York: Institute of International Education.
- Kosic, A. (2004). Acculturation strategies, coping process and acculturative stress. *Scandinavian Journal of Psychology, 45*(4), 269–278.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lee, J.-S., Koeske, G. F., & Sales, E. (2004). Social support buffering of acculturative stress: a study of mental health symptoms among Korean international students. *International Journal of Intercultural Relations, 28*(5), 399–414.
- Mangold, D. L., Veraza, R., Kinkier, L., & Kinney, N. A. (2007). Neuroticism predicts acculturative stress in Mexican American college students. *Hispanic Journal of Behavioral Sciences, 29*(3), 366–383.
- McCrae, R. R., & Costa Jr., P. T. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of Personality, 54*(2), 385.

- McCrae, R. R., Costa, P. T. J., Del Pilar, G. H., Rolland, J.-P., & Parker, W. D. (1998). Cross-cultural assessment of the five-factor model: The Revised NEO Personality Inventory. *Journal of Cross-Cultural Psychology, 29*(1), 171–188.
- McCrae, R. R., Costa, P. T. J., Ostendorf, F., Angleitner, A., Hřebíčková, M., Avia, M. D., ... Smith, P. B. (2000). Nature over nurture: Temperament, personality, and life span development. *Journal of Personality and Social Psychology, 78*(1), 173–186.
- McLachlan, D. A., & Justice, J. (2009). A grounded theory of international student well-being. *Journal of Theory Construction & Testing, 13*(1), 27–32.
- Mori, S. (2000). Addressing the mental health concerns of international students. *Journal of Counseling & Development, 78*(2), 137–144.
- Nilsson, J. E., Berkel, L. A., Flores, L. Y., & Lucas, M. S. (2004). Utilization rate and presenting concerns of international students at a university counseling center: implications for outreach programming. *Journal of College Student Psychotherapy, 19*(2), 49–58.
- Noble, C. L., Ashby, J. S., & Gnilka, P. B. (2014). Multidimensional perfectionism, coping, and depression: Differential prediction of depression symptoms by perfectionism type. *Journal of College Counseling, 17*(1), 80–94.
- Oei, T. P., & Notowidjojo, F. (1990). Depression and loneliness in overseas students. *International Journal of Social Psychiatry, 36*(2), 121–130.
- Pacht, A. R. (1984). Reflections on perfection. *American Psychologist, 39*(4), 386–390.
- Parkes, K. R. (1994). Personality and coping as moderators of work stress processes: Models, methods and measures. *Work & Stress, 8*(2), 110–129.

- Park, H., Paul Heppner, P., & Lee, D. (2010). Maladaptive coping and self-esteem as mediators between perfectionism and psychological distress. *Personality and Individual Differences, 48*(4), 469–474.
- Ptacek, J. T., & Gross, S. (1997). Coping as an individual difference variable. In G. R. Pierce, B. Lakey, I. G. Sarason, & B. R. Sarason (Eds.), *Sourcebook of social support and personality*. (pp. 69–91). New York, NY US: Plenum Press.
- Reynolds, A. L., & Constantine, M. G. (2007). Cultural adjustment difficulties and career development of international college students. *Journal of Career Assessment, 15*(3), 338–350.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology, 54*(1), 72–85.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement & Evaluation in Counseling & Development, 34*(3), 130.
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality & Social Psychology Review, 10*(4), 295–319.
- Suddarth, B. H., & Slaney, R. B. (2001). An investigation of the dimensions of perfectionism in college students. *Measurement & Evaluation in Counseling & Development, 34*(3), 157.
- Suls, J., David, J. P., & Harvey, J. H. (1996). Personality and coping: Three generations of research. *Journal of Personality, 64*(4), 711–735.
- Sümer, S., Poyrzli, S., & Grahame, K. (2008). Predictors of depression and anxiety among international students. *Journal of Counseling & Development, 86*(4), 429–437.
- Terry, D. J. (1991). Coping resources and situational appraisals as predictors of coping behavior. *Personality and Individual Differences, 12*(10), 1031–1047.

- Terry, D. J. (1994). Determinants of coping: The role of stable and situational factors. *Journal of Personality and Social Psychology, 66*(5), 895–910.
- Terry-Short, L. A., Glynn Owens, R., Slade, P. D., & Dewey, M. E. (1995). Positive and negative perfectionism. *Personality and Individual Differences, 18*(5), 663–668.
- Tidwell, R., & Hanassab, S. (2007). New challenges for professional counsellors: The higher education international student population. *Counselling Psychology Quarterly, 20*(4), 313–324.
- Torres, L. (2010). Predicting levels of Latino depression: Acculturation, acculturative stress, and coping. *Cultural Diversity and Ethnic Minority Psychology, 16*(2), 256–263.
- Tseng, W.-C., & Newton, F. B. (2002). International students' strategies for well-being. *College Student Journal, 36*(4), 591.
- Walton, S. J. (1990). Stress management training for overseas effectiveness. *International Journal of Intercultural Relations, 14*(4), 507–527.
- Wang, D., & Mallinckrodt, B. (2006). Acculturation, attachment, and psychosocial adjustment of Chinese/Taiwanese international students. *Journal of Counseling Psychology, 53*(4), 422–433.
- Wang, K. T., Yuen, M., & Slaney, R. B. (2009). Perfectionism, depression, loneliness, and life satisfaction: A study of high school students in Hong Kong. *The Counseling Psychologist, 37*(2), 249–274.
- Ward, C., Leong, C.-H., & Low, M. (2004). Personality and sojourner adjustment: An exploration of the Big Five and the cultural fit proposition. *Journal of Cross-Cultural Psychology, 35*(2), 137–151.

- Wei, M., Heppner, P. P., Mallen, M. J., Ku, T.-Y., Liao, K. Y.-H., & Wu, T.-F. (2007). Acculturative stress, perfectionism, years in the United States, and depression among Chinese international students. *Journal of Counseling Psychology, 54*(4), 385–394.
- Wei, M., Heppner, P. P., Russell, D. W., & Young, S. K. (2006). Maladaptive perfectionism and ineffective coping as mediators between attachment and future depression: A prospective analysis. *Journal of Counseling Psychology, 53*(1), 67–79.
- Yang, B., & Clum, G. A. (1995). Measures of life stress and social support specific to an Asian student population. *Journal of Psychopathology and Behavioral Assessment, 17*(1), 51–67.
- Yi, J. K., Lin, G. J.-C., & Kishimoto, Y. (2003). Utilization of counseling services by international students. *Journal of Instructional Psychology, 30*(4), 333–342.
- Ying, Y.-W., & Han, M. (2006). The contribution of personality, acculturative stressors, and social affiliation to adjustment: A longitudinal study of Taiwanese students in the United States. *International Journal of Intercultural Relations, 30*(5), 623–635.
- Zhang, B., & Cai, T. (2012). Coping styles and self-esteem as mediators of the perfectionism-depression relationship among Chinese undergraduates. *Social Behavior & Personality: An International Journal, 40*(1), 157–168.
- Zhang, B., Taisheng. (2012). Coping styles and self-esteem as mediators of the perfectionism-depression relationship among Chinese undergraduates. *Social Behavior & Personality: An International Journal, 40*(1), 157–168.

2 PERFECTIONISM, ACCULTURATIVE STRESS, COPING STYLES, AND DEPRESSION AMONG INTERNATIONAL STUDENTS

Introduction

The United States hosts more of the world's 4.5 million international students than any other country in the world. The number of hosted students in the United States is almost double those hosted by the United Kingdom, the second leading host country. The top five hosts of international students include United States, United Kingdom, China, France, and Germany (Institute of International Education, 2014). During the 2013-2014 academic year, there were more than 886,000 international students enrolled in U.S. institutions of higher education. Of this total, 64% came from Asia, followed by Europe and Middle East (10%), Latin America (8%), Africa (3.5%), North America (3%), and 0.7% from Oceania (Institute of International Education, 2014). In addition, international students make an economic contribution to the U.S. of nearly \$27 billion (Institute of International Education, 2014).

In traveling to the United States, international students often face a number of challenges including cultural shock, social isolation, language barriers, academic difficulties, and homesickness (Sümer, Poyrzli, & Grahame, 2008). In some more severe cases, international students may develop a sense of hopelessness, isolation, and loneliness that may ultimately manifest in a variety of psychological symptoms including depression (Mori, 2000). A number of authors (e.g., Oei & Notowidjojo, 1990) have noted that international students are more likely to experience depression and other mental health concerns than domestic students. A growing body of research (e.g., Nilsson, Berkel, Flores, & Lucas, 2004; Yi, Kin, Kishimoto, 2003) investigating international students' mental health concerns has identified depression as one of the most common presenting issues when international students seek help from university counseling services.

While international students are busy adapting to new academic and social environments, what usually accompanies is a considerable amount of acculturative stress. Acculturative stress generally refers to the psychological difficulties and physical discomforts experienced in response to the adaptation to a new cultural environment (Lee, Koeske, & Sales, 2004) or stresses resulting from the process of acculturation (Berry, Kim, Minde, & Mok, 1987). Like other sojourners, international students share similar sources of acculturative stress. In addition, they might experience additional stress from academic pressures and the application of their language abilities. International students may be vulnerable to depression especially when they are experiencing acculturative stress since they may feel overwhelmed and hopeless (Wei, Heppner, Malen, Ku, Liao, & Wu, 2007). The results of a small body of empirical research have shown a positive relationship between acculturative stress and depression among international students (e.g., Constantine, Okazaki, & Utsey, 2004; Lee et al., 2004; Wei et al., 2007).

Oei and Notowidjojo (1990) noted that individuals' cognitive styles or ways of thinking are important factors in determining how adjustment to a new culture impacts individuals' experience. These authors noted that individuals with different predispositions or personality characteristics may be predisposed to more or fewer stressful reactions to immersion in a new culture. Previous studies have pointed out significant associations between stress and a number of personality variables. For instance, Wei et al. (2007) found a three-way interaction between acculturative stress, maladaptive perfectionism, and years in the U.S. in predicting depression. In addition, they examined the significance of a simple interaction (e.g., acculturative stress and Maladaptive Perfectionism) at different levels of U.S. residency (e.g., the shorter vs. longer period of time in the U.S.). The results suggested that high maladaptive perfectionism significantly en-

hanced the positive relationship between acculturative stress and depression among Chinese international students who have been in the U.S. for a longer period of time, but not for those who have been in the U.S. for a shorter period of time. In another recent study, Ashby, Dickenson, Gnilka, & Noble (2011) found significant relationships between maladaptive perfectionism, hope, and depression as well as significant relationships between adaptive perfectionism, hope, and depression.

Perfectionism, though conceptualized somewhat differently by different authors, has a generally accepted definition of “an extreme or excessive striving for perfection, as in one’s work” and “a disposition to regard anything short of perfection as unacceptable” (Slaney, Rice, Mobley, Trippi, & Ashby, 2001, p. 131). Hamachek (1978) delineated between what he identified as normal and neurotic perfectionism. According to Hamachek (1978)’s conceptualization, normal/adaptive perfectionists hold high standards but set up more realistic and reasonable self-expectations according to their limitations and strengths. Even when falling short of goals, they still can enjoy the goal-pursuing process and experience a deep sense of satisfaction since they allow themselves to be less precise and perfect. Hamachek (1978) noted that neurotic/maladaptive perfectionists also hold high standards. However, their goals are usually so high as to be unattainable. They work constantly to avoid a fear of failure and often lack clear definitions of how good is good enough. A number of recent measures of perfectionism have been based on this conceptualization of adaptive and maladaptive perfectionism. For instance, Slaney et al. (2001) identified high standards (measuring more adaptive perfectionism) and discrepancy (measuring the maladaptive aspects of perfectionism) as the major constructs of perfectionism in forming the Almost Perfect Scale-Revised (APSR).

Previous research using the APSR has consistently revealed an inverse relationship between adaptive perfectionism and depression (e.g., Ashby et al., 2011; Slaney et al., 2001) and a positive association between maladaptive perfectionism and depression (e.g., Slaney et al., 2001; Wei et al., 2007; Wei, Heppner, Russell, & Young, 2006). However, the only study to date investigating the relationship between perfectionism and depression in international students (e.g., Wei et al., 2007) did not include an investigation of the relationship between adaptive perfectionism and depression.

A number of authors (e.g., Gnilka, Ashby, & Noble, 2012) have investigated the relationship between perfectionism and coping. For instance, Hewitt, Flett and Endler (1995) noted that more adaptive dimensions of perfectionism are associated with adaptive types of coping, whereas maladaptive dimensions of perfectionism are associated with maladaptive types of coping. These findings are consistent with Hamachek (1978)'s description of normal/adaptive perfectionists focusing on their strengths and paying attention to doing things right in response to stressful situations. As a result, normal/adaptive perfectionists tend to adopt more active/effective coping and less avoidant/ineffective coping to deal with the stressors they experience potentially decreasing the frequency and/or duration of the stressors (Holahan, Moos, & Bonin, 1997). In contrast, neurotic/maladaptive perfectionists respond to stressful situations with a helpless orientation and turn their attention toward direct avoiding doing things wrong (Hamachek, 1978). Therefore, neurotic/maladaptive perfectionists engage in more avoidant/ineffective coping and less active/effective coping to deal with the stressors they experience and might increase the frequency and/or duration of the stressors (Holahan et al., 1997). A number of studies have investigated the relationship between maladaptive perfectionism and coping. For instance, Hewitt et al.

(1995) found that the interaction between maladaptive perfectionism and ineffective coping significantly predicted greater levels of depression. In other studies, ineffective coping served as a mediator between maladaptive perfectionism and depression (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000; Dunkley, Zuroff, & Blankstein, 2003; Wei et al., 2006). However, few studies have investigated the relationship between adaptive perfectionism, coping and depression (e.g., Gnilka et al., 2012) and there have been no studies investigating these relationships in a sample of international students have been conducted.

Previous studies (Wei et al., 2007) have found significant relationships between personality variables, including perfectionism, acculturative stress, and depression among Chinese international students. The current study is designed to replicate and extend previous studies (e.g., Wei et al., 2007) by investigating the relationship between both adaptive and maladaptive, perfectionism, acculturative stress, coping styles, and depression. Specifically, the study will investigate whether adaptive and maladaptive perfectionism, acculturative stress, and coping strategies have interaction effect in predicting depression in a sample of international students.

Method

Participants

A total of 789 international students participated in the current study. Participants held an F-1 type student visa, which is given to individuals who engage in a full course of academic or language study in an accredited educational program in the U.S. These participants were recruited via an invitational email through Offices of International Students and Services at seventeen different college campuses across the U.S. The sample included 312 men (39.5%) and 477 women (60.5%). The age of the students ranged from 17 to 54 with a mean age of 26.1 (SD =

5.72). By educational levels, 261 (33.1%) were undergraduates, 227 (28.8%) were master's students, 277 (35.1%) were doctoral students, and 24 (3.0%) identified as seeking another degree. Students' GPA ranged from 2.00 to 4.00 ($M = 3.58$, $SD = .39$). Regarding race/ethnicity, 435 (55.1%) of the participants were Asian/Pacific Islander, 141 (17.9%) were White/non-Latino/a, 93 (11.8%) were Latino/a, 51 (6.5%) were Middle Eastern, 45 (5.7%) were Black/African, and 24 (3.0%) identified as multi-racial. The current sample was representative of overall international student population in the U.S. in terms of the ratio for race-ethnicity of students for the general population, which is as follows: 64.9% Asian/Pacific Islander, 13.0% White/non-Latino/a, 9.7% Middle Eastern, 8.2% Latino/a, and 4.2% Black/African (Institute of International Education, 2014). Among the participants, 623 (79.0%) were single, 158 (20.0%) were married or partnered, and 8 (1.0%) was divorced. Participants' length of residence in the United States ranged from 1 month to 16 years with a mean of 2.7 years ($SD = 2.57$) and a median of 2.1 years. Only 11 students reported having been in the U.S. for more than 11 years.

Instruments

Demographics Questionnaire. Participants were asked to complete a 9-item demographics questionnaire that gathered information regarding gender, age, marital status, country of origin, world region, race/ethnicity, length of stay in the U.S., current academic status, and current G.P.A.

Acculturative Stress Scale for International Students (ASSIS). The ASSIS (Sandhu & Asrabadi, 1998) is a 36-item, 5-point (1 = strongly disagree, 3 = unsure, 5 = strongly agree) instrument that measures acculturative stress of international students. The ASSIS consists of seven factors, including Perceived Discrimination (8 items), Homesickness (4 items), Perceived Hate (5 items), Fear (4 items), Stress Due to Change/Culture Shock (3 items), Guilt (2 items),

and Nonspecific Concerns (10 items). A sample item is “I feel overwhelmed that multiple pressures are placed upon me after my migration to this society.” A total score ranges from 36 to 180, with higher scores indicating greater levels of acculturative stress. Internal consistency reliability from a variety of samples ranged from .87 to .95 (Constantine et al., 2004; Duru & Poyrazli, 2007; Hsiao, Ashby, Gnilka, & Noble, 2011; Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004; Sandhu & Asrabadi, 1998; Wei et al., 2007; Yeh & Inose, 2003) and Guttman’s split-half coefficient was .94 (Sandhu & Asrabadi, 1998). The internal consistency reliability of this instrument for the current sample was .95 which was similar to that of the other international student sample that was .93 (e.g., Hsiao et al., 2011).

Center for Epidemiological Studies-Depression Scale (CES-D). The CES-D (Radloff, 1977) is a 20-item self-report scale that was developed to assess current levels of depressive symptoms and includes six factors which include depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Each item is rated on a 4-point Likert scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). Participants were asked to indicate within the previous week how often they experienced the symptoms related to depression. A sample item is “My appetite was poor.” A total score ranges from 0 to 60, with higher scores indicating higher levels of depressive symptoms. Scores of 16 or higher are considered cases of clinical depression. Radloff (1977) reported that the CES-D had high internal consistency reliability including coefficients of .85 for a sample from the general population and .90 for a psychiatric sample. In addition, the internal consistency reliabilities ranged from .88 to .91 among international student samples (Constantine et al., 2004; Wei et al., 2007, 2006; Wei, Ku, Russell, Mallinckrodt, & Liao, 2008).

Construct validity was supported by the positive relationship between acculturative stress (Constantine et al., 2004; Wei et al., 2007) and perceived stress (Nishi, Uehara, Kondo, & Matsuoka, 2010). The alpha coefficient of this instrument for the current sample was .91. The alpha coefficient of the current sample is similar to those of other international student samples. For example, the alpha coefficient for Constantine and her colleagues (2004) was .91, .89 for Wei et al. (2007), .91 for Wei et al. (2006), and .86 for Wei et al. (2008).

The Almost Perfect Scale-Revised (APS-R). The APS-R (Slaney, Rice, Mobley, Trippi, & Ashby, 2001) is a 23-item self-report measure to assess levels of perfectionism and is made up of three subscales, including High Standards (7 items), Order (4 items), and Discrepancy (12 items). The Standards subscale measures the possession of high standards for personal performance. The Discrepancy subscale measures the degree to which the participants experience as the result of failing to achieve the personal standards for performance. The Order subscale measures a person's preference for neatness and orderliness. The Standards subscale was utilized to assess the positive aspect of perfectionism, whereas the Discrepancy subscale was utilized as a measure of the negative aspect of perfectionism. Participants were asked to respond a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). A sample item is "I often feel frustrated because I cannot meet my goals." Slaney et al. (2001) reported item structure coefficients ranging from .42 to .88 and high internal consistency reliabilities for subscale scores in American college students: .85 for High Standards, .92 for Discrepancy, and .86 for Order. Wei et al. (2007) reported that the coefficient alpha was .95 for Discrepancy in a sample of international students. The Chinese version of the APS-R was used in a sample of Taiwanese college students and the Cronbach's coefficient alphas were .82 for High Standards, .68 for Order, and .88 for Discrepancy (Wang, Slaney, & Rice, 2007). In the current study, internal consistency

reliability for High Standards subscale was .85, for Order subscale was .73, and for Discrepancy scale was .93. The coefficient alphas for Order subscale in current sample and in Taiwanese college student sample were both relatively lower than the other two subscales.

Problem-Focused Style of Coping (PF-SOC). The PF-SOC (Heppner, Cook, Wright, & Johnson, 1995) is an 18-item self-report measure that assesses the extent to which participants consider whether they are able to resolve and cope with their problems effectively. Participants were asked to rate how often they engage in each item's behavior across a 5-point Likert-type scale ranging from 1 (almost never) to 5 (almost all of the time). The PF-SOC consists of three subscales: Reflective (7 items), Suppressive (6 items), and Reactive (5 items) style of coping. Reflective style represents a tendency to examine causal relationships, plan, and be systematic in coping (e.g., "I think about ways that I solved similar problems in the past"). Suppressive style represents a tendency to deny problems and avoid coping activities (e.g., "I am not really sure what I think or believe about my problems"). Reactive style is defined as a tendency to have emotional and cognitive responses that confuse and distort individuals' coping activities (e.g., "I get preoccupied thinking about my problems and overemphasize some parts of them"). A higher score indicates that individuals tend to adopt more Reflective (score range: 7-35), more Suppressive (score range: 6-30), or more Reactive (score range: 5-25) styles of coping. Evidence for the construct validity of the measure were reported in Heppner et al. (1995). The three-week test-retest reliability for the PF-SOC ranged from .65 to .71. Coefficient alphas for the Reflective, Suppressive, and Reactive style subscales were .77, .76, and .73 respectively among American college students (Heppner et al., 1995) and .75, .70, and .81 among international students (Wei et al., 2008). Recent studies have provided evidence for the construct validity of the PF-SOC in its

relationship to depressive symptoms (Wei et al., 2006, 2008). Coefficient alphas for the Reflective style, Suppressive style, and Reactive style in the current study are .76, .79, and .77 respectively. The coefficient alphas of the current sample were similar to those of other international student sample (Wei et al., 2008). Coefficient alphas for the Reflective style, Suppressive style, and Reactive style for Wei et al. (2008)'s study were .75, .70, and .81 respectively. Consistent with the results of previous studies using the measure (e.g., Heppner et al., 1995; Wei et al., 2006; Wei et al., 2008), in the current study, the Reactive style and Suppressive style had a strong relationship. The correlation coefficient of Reactive style and Suppressive style for current study was .50 ($p < .01$) and the correlation coefficient of Reactive style and Suppressive style for Wei et al. (2008)'s study was .56 ($p < .001$).

Procedures

The current study was conducted using an online format. Participants were recruited through International Students' offices. An invitational email was forwarded to international students through International Students offices in seventeen universities across the U.S. This e-mail briefly informed students about the study and invited them to participate at a designated website. Participation in this study was voluntary and anonymous; no identifiable information was collected.

Web-based data collection procedures induce a concern for internet accessibility by the targeted population (Gosling, Vazire, Srivastava, & Oliver, 2004). Nevertheless, with the prevailing use of the internet, international students' patterns of communication with their families and friends in their home countries, and the easy access to the internet around their campuses (e.g., computer labs, wireless network), accessibility of the internet may not present a significant concern for international student population.

Literature suggests that in order to minimize the effects of repeat responders, it is important to match consecutive responses on the main demographic characteristics like age, gender, degree level, racial ethnicity, and length of residence (Gosling et al., 2004). Therefore, a set of item responses were compared among consecutive responses to identify duplicate or suspicious duplicate entries, and if any matched responses were detected, only the first entry was kept for data analyses. In the current sample, we did not find any duplicate entries.

Data Analysis

This project was a cross-sectional, exploratory study in which variables including perfectionism, depression, acculturative stress, and coping styles were measured among international students. Cronbach's alpha for each instrument was calculated to determine the internal reliability for the current sample. Correlational analyses were performed to examine the relations between the study interval variables. Hierarchical multiple regression analyses were used to test moderation between continuous variables.

A hierarchical regression was used in the analyses to test for the interaction of variables in the prediction of depression. Because two APS-R factors, high standards and discrepancy, were significantly correlated in the total sample ($\gamma = .22, p < .05$), these two variables were residualized to remove their shared variance (Blatt, Zuroff, Bondi, Sanislow, & Pilkonis, 1998). Using regression procedures, high standards was residualized on discrepancy and vice versa. In the current study, acculturative stress, two aspects of perfectionism and three types of coping strategies (i.e., reflective, suppressive, and reactive coping) were included in tests of moderation on the dependent variable (i.e., depression). According to Baron and Kenny (1986) and Hayes (2013), the multiplication of the moderator and independent variables are added to the regression equation in order to test the linear moderation effect between continuous variables.

Six parallel hierarchical multiple regression analyses were conducted. The two-way interaction terms were created by multiplying acculturative stress, one of the two aspects of perfectionism, or one of the three coping strategies (e.g., Adaptive Perfectionism \times Acculturative Stress, Adaptive Perfectionism \times Reflective Coping, and Acculturative Stress \times Reflective Coping). Similarly, the three-way interaction terms were created by multiplying acculturative stress, one of the two aspects of perfectionism, and one of the three coping strategies (e.g., Adaptive Perfectionism \times Acculturative Stress \times Reflecting Coping). For example, in one of the six hierarchical multiple regressions, adaptive perfectionism, acculturative stress, and reflecting coping were entered as a block in the first step of the regression. The three two-way interaction terms (i.e., Adaptive Perfectionism \times Acculturative Stress, Adaptive Perfectionism \times Reflective Coping, and Acculturative Stress \times Reflective Coping) were entered as a block in the second step of the regression. Finally, the three-way term (i.e., Adaptive Perfectionism \times Acculturative Stress \times Reflecting Coping) were entered as a block in the third step of the regression. When the regression coefficient for the interaction term (e.g., Adaptive Perfectionism \times Acculturative Stress) predicting the dependent variable (i.e., Depression) is significant, the interaction effect is supported (Baron & Kenny, 1986).

Results

Correlational Analyses

Descriptive statistics including means, standard deviations, score ranges, intercorrelations, and scale alphas for the study variables appear in Table 1. In terms of the relationship between demographic and study variables, gender had a significant relationship with reflective coping style ($\gamma = -.08, p < .05$). Male students tended to report the use of more reflective coping styles in dealing with stress. Age was positively correlated with length of residence ($\gamma = .27, p < .01$), order ($\gamma = .07, p < .05$) and reflective coping style ($\gamma = .08, p < .05$). Students who were older tended to live in the U.S. longer, have more preference for neatness and orderliness, and report more use of a reflective coping style in dealing with stress.

Correlational analyses between study variables indicated that depression was positively correlated with discrepancy ($\gamma = .51, p < .01$), acculturative stress ($\gamma = .54, p < .01$), and reactive ($\gamma = .57, p < .01$) and suppressive ($\gamma = .61, p < .01$) coping styles. Students who reported higher levels of negative perfectionism, more acculturative stress, or more use of reactive or suppressive coping styles reported higher levels of depression. In contrast, depression was negatively correlated with reflective coping style ($\gamma = -.18, p < .01$). Students who use more reflective coping tended to have lower levels of depression.

In terms of coping styles, reflective coping style was positively correlated with high standards ($\gamma = .23, p < .01$) and order ($\gamma = .24, p < .01$), but negatively correlated with discrepancy ($\gamma = -.17, p < .01$). Students who reported higher levels of adaptive perfectionism, more preference for neatness and orderliness, or lower levels of maladaptive perfectionism tended to use more effective styles of coping. The results showed that reactive coping style was positively

correlated with discrepancy ($\gamma = .51, p < .01$) and acculturative stress ($\gamma = .40, p < .01$). International students who reported higher levels of negative perfectionism or greater acculturative stress tended to use more reactive coping. Finally, suppressive coping style was negatively correlated with high standards ($\gamma = -.13, p < .01$) and order ($\gamma = -.16, p < .01$), but positively correlated with discrepancy ($\gamma = .50, p < .01$) and acculturative stress ($\gamma = .41, p < .01$). International students who reported higher levels of positive perfectionism or more preference for neatness and orderliness tended to use less suppressive coping; those who reported higher levels of negative perfectionism or greater acculturative stress tended to use more suppressive coping.

In this study, acculturative stress was positively correlated with discrepancy ($\gamma = .34, p < .01$), and reactive ($\gamma = .39, p < .01$) and suppressive ($\gamma = .41, p < .01$) coping styles. Students who reported higher levels of negative perfectionism or use more ineffective coping styles reported higher levels of depression.

Moderation Analyses

Adaptive perfectionism, acculturative stress, and reflective coping. In step 1, results indicated that adaptive perfectionism, acculturative stress, and reflective coping accounted for 32% of the variance in depression, $F(3, 785) = 123.11, p < .001$. Adaptive perfectionism ($\beta = -.09, t(785) = -3.00, p < .01$), acculturative stress ($\beta = .52, t(785) = 17.73, p < .001$), and reflective coping ($\beta = -.12, t(785) = -3.87, p < .001$; see Table 2) were all found to significantly predict depression. In step 2, the overall two-way interactions did not significantly add additional variance in depression beyond the first order effects, $\Delta R^2 = .001, \Delta F(3, 782) = .001, p = .74$. None of the two-way interactions were found to be statistically significant. In step 3, the three-way interaction also did not contribute to the explained variability in depression, $\beta = -.34, t(781) = -.85, p > .05$ (see Table 2).

Adaptive perfectionism, acculturative stress, and suppressive coping. In step 1, adaptive perfectionism, acculturative stress, and suppressive coping accounted for 47% of the variance in depression, $F(3, 785) = 233.60, p < .001$. Acculturative stress ($\beta = .35, t(785) = 12.20, p < .001$), and reflective coping ($\beta = .46, t(785) = 15.64, p < .001$) were found to significantly predict depression. However, adaptive perfectionism failed to predict depression ($\beta = -.02, t(785) = -1.03, p = .31$; see Table 3). In step 2, the three two-way interactions significantly predicted depression ($\Delta R^2 = .01, p < .001$). Cohen (1992) pointed out that R^2 value of .0196 indicates small effect size. However, in separate reviews of the literature, Champoux and Peters (1987) and Chaplin (1991) reported that interaction terms in social science studies typically account for approximately 1% to 3% of the variance. The regression coefficient for the two-way interaction of Acculturative Stress \times Suppressive Coping was statistically significant predicting depression ($\beta = .63, t(782) = 4.40, p < .001$; see Table 3). In step 3, the three-way interaction did not significantly predict depression beyond the main effects and the two-ways interaction effects, $\beta = -.04, t(781) = -.13, p > .05$.

In order to further explore the two-way interaction, we used the procedures suggested by Cohen, Cohen, West, and Aiken (2003) to plot the results for interpreting the nature of the interaction between the predictor variables. The relation between the first predictor and the dependent variable (i.e., depression) was plotted at one standard deviation above and one standard deviation below the second variable (i.e., moderator). We further tested the significant levels of each of the two simple slopes (Aiken & West, 1991; Cohen et al., 2003). In figure 1, the results of simple slope tests indicated that there was a significant positive association between depression and acculturative stress for both high and low suppressive coping. Furthermore, a higher level of suppressive coping ($b = .20$) enhanced the association between depression and acculturative stress

more than a lower level of suppressive coping ($b = .10$). The effect sizes for higher level of suppressive coping and lower level of suppressive coping were both .019. Cohen (1988) has suggested that effect sizes of 0.02, 0.15, and 0.35 should be considered small, medium, and large, respectively. However, Aguinis, Beaty, Boik, and Pierce (2005) has shown that the average effect size in tests of moderation is only .009.

Adaptive perfectionism, acculturative stress, and reactive coping. In step 1, results indicated that adaptive perfectionism, acculturative stress, and reactive coping accounted for 46% of the variance in depression, $F(3, 785) = 219.90, p < .001$. Adaptive perfectionism ($\beta = -.12, t(785) = -4.45, p < .001$), acculturative stress ($\beta = .37, t(785) = 12.80, p < .001$), and reactive coping ($\beta = .42, t(785) = 14.70, p < .001$; see Table 4) were all found to significantly predict depression. In step 2, the three two-way interactions also significantly predicted depression ($\Delta R^2 = .02, p < .001$). The regression coefficient for the two-way interaction of Acculturative Stress \times Reactive Coping was statistically significant predicting depression ($\beta = .63, t(782) = 4.51, p < .001$; see Table 4). In step 3, the three-way interaction did not significantly predict depression beyond the main effects and the two-ways interaction effects, $\beta = .26, t(781) = .96, p > .05$. We used the same procedures to plot the results of the interaction between the predictor variables and tested the two simple slopes. In figure 2, the test results of the two slopes indicated that there was a significant relationship between depression and acculturative stress at both high and low levels of reactive coping. The higher level of reactive coping ($b = .21$) aggravated the relationship between depression and acculturative stress more than the lower level of reactive coping ($b = .11$). The effect sizes for higher level of reactive coping and lower level of reactive coping were .019 and .018 respectively.

Maladaptive perfectionism, acculturative stress, and reflective coping. In step 1, maladaptive perfectionism, acculturative stress, and reflective coping accounted for 43% of the variance in depression, $F(3, 785) = 200.71, p < .001$. Maladaptive perfectionism ($\beta = .38, t(785) = 13.01, p < .001$), acculturative stress ($\beta = .40, t(785) = 14.03, p < .001$), and reflective coping ($\beta = -.07, t(785) = -2.37, p < .05$; see Table 5) were all found to significantly predict depression. In step 2, the three two-way interactions significantly predicted depression ($\Delta R^2 = .02, p < .001$). The regression coefficient for the two-way interaction of Maladaptive perfectionism \times Acculturative Stress ($\beta = .40, t(782) = 4.29, p < .001$) and Maladaptive perfectionism \times Reflective coping were statistically significant predicting depression ($\beta = -.38, t(782) = -2.84, p < .01$). In step 3, the three-way interaction did not significantly predict depression beyond the main effects and the two-ways interaction effects, $\beta = .12, t(781) = .31, p > .05$ (see Table 5).

In figure 3, we plotted and tested the two slopes of the interaction of acculturative stress and maladaptive perfectionism and the results indicated that there was a significant relationship between depression and acculturative stress at both high and low levels of maladaptive perfectionism. The higher level of maladaptive perfectionism ($b = .23$) enhanced the positive relationship between depression and acculturative stress more than the lower level of maladaptive perfectionism ($b = .13$). The effect sizes for higher and lower level of maladaptive perfectionism were .018 and .017 respectively.

Next, we examined the significance of the simple interaction of reflective coping and maladaptive perfectionism (see Figure 4). The results indicated that the simple slope for higher maladaptive perfectionism was steeper than that for lower maladaptive perfectionism. Using the above procedure to test the significance of the two slopes, we found that the simple slope was

significant for high maladaptive perfectionism ($b = -.25, p < .01$), but not significant for low maladaptive perfectionism ($b = -.02, p > .05$; see Figure 4). These results indicate that high maladaptive perfectionism significantly enhanced the negative relationship between depression and reflective coping, whereas low maladaptive perfectionism did not significantly affect this negative relationship. Consistent with previous results, the effect size for high maladaptive perfectionism (.029) was markedly higher than the effect size for low maladaptive perfectionism (.006).

Maladaptive perfectionism, acculturative stress, and suppressive coping. In step 1, results indicated that maladaptive perfectionism, acculturative stress, and suppressive coping accounted for 51% of the variance in depression, $F(3, 785) = 373.27, p < .001$. Maladaptive perfectionism ($\beta = .24, t(785) = 8.00, p < .001$), acculturative stress ($\beta = .31, t(785) = 11.16, p < .001$), and suppressive coping ($\beta = .35, t(785) = 11.39, p < .001$; see Table 6) were all found to significantly predict depression. In step 2, the three two-way interactions also significantly predicted depression ($\Delta R^2 = .02, p < .001$). The regression coefficient for the two-way interaction of Acculturative Stress \times Suppressive Coping was statistically significant predicting depression ($\beta = .54, t(782) = 3.16, p < .01$). In step 3, the three-way interaction did not significantly predict depression beyond the main effects and the two-ways interaction effects, $\beta = -.19, t(781) = -.63, p > .05$ (see Table 6). The interaction of Acculturative Stress \times Suppressive Coping on depression is described above.

Maladaptive perfectionism, acculturative stress, and reactive coping. In step 1, the three independent variables, maladaptive perfectionism, acculturative stress, and reactive coping accounted for 49% of the variance in depression, $F(3, 785) = 255.86, p < .001$. Maladaptive perfectionism ($\beta = .27, t(785) = 8.94, p < .001$), acculturative stress ($\beta = .33, t(785) = 11.66, p < .001$),

and reactive coping ($\beta = .31$, $t(785) = 10.00$, $p < .001$; see Table 7) were all found to significantly predict depression. In step 2, the three two-way interactions also significantly predicted depression ($\Delta R^2 = .02$, $p < .001$). The regression coefficient for the two-way interaction of Acculturative Stress \times Reactive Coping was statistically significant predicting depression ($\beta = .47$, $t(782) = 2.87$, $p < .01$). In step 3, the three-way interaction did not significantly predict depression beyond the main effects and the two-ways interaction effects, $\beta = -.16$, $t(781) = -.55$, $p > .05$ (see Table 7). The interaction of Acculturative Stress \times Reactive Coping on depression is described above.

Discussion

The main purpose of this study was to examine the interaction between dimensions of perfectionism (adaptive and maladaptive), acculturative stress, and three coping strategies (reflective, suppressive, and reactive) in predicting depression among international students. We expected maladaptive perfectionism would be positively related to depression. The results of this study supported this association and are consistent with the results of previous literature showing this relationship among international students (e.g., Wei et al., 2007, 2006). When those international students with maladaptive perfectionism encounter difficulties, they may focus on the negative aspects of a difficulty and fail to set up realistic goals, making them more vulnerable to depression. We also expected adaptive perfectionism to be negatively related to depression. However, the results of this study did not support this relationship. While a number of previous studies (e.g., Ashby et al., 2011; Slaney et al., 2001) have offered support for this relationship, none of these studies investigated this relationship in international students. Additional studies may

want to focus on the ways that adaptive perfectionism manifests and its relationship to other variables in international student samples.

The results of this study indicated a positive relationship between acculturative stress and depression, which is consistent with the results of previous studies (e.g., Constantine et al., 2004; Lee et al., 2004; Wei et al., 2007). This association may be because international students move from their home countries to the U.S. and encounter personal, social, and environmental changes upon arrival. The stress induced from adapting to a new culture may have detrimental effects on international students' mental health in the form of depression.

Consistent with the results of previous literature (e.g., Hewitt et al., 1995; Noble, Ashby, & Gnilka, 2014; Noble et al., 2014; Wei et al., 2006), the results of this study suggest that effective coping is negatively related to depression and ineffective coping is positively related to depression. Those international students who tend to use effective coping strategies to deal with the difficulties during acculturation reduce the vulnerabilities to psychological distress. In contrast, those who tend to use ineffective coping strategies to face the obstacles upon arrival would be more vulnerable to depression.

Moderation Discussion

The results of moderation analyses in this study showed that there were significant interactions between several variables in predicting levels of depression in international students. The results offered no support for three-way interactions. However, a number of two-way interactions were significant. For instance, there was a significant interaction between acculturative stress and suppressive coping in the prediction of depression (see Figure 1). Specifically, the results indicated that international students who reported high use of suppressive coping are more vulnerable to depression than those who report low use of suppressive coping in face of acculturative

stress. This finding is consistent with previous studies (e.g., Crockett et al., 2007; Driscoll & Torres, 2013) that found that ineffective coping either mediated or moderated the relationship between acculturative stress and depression. This relationship might be explained by international students having limited resources of social supports and lack of experiences to cope with acculturative stress. Less frequent use of suppressive coping may mark a greater likelihood of engaging with stressors or problems faced in a host country, resulting in decreased depressed feelings. However, more frequent use of suppressive coping to deal with acculturative stress may be a form of denial that ultimately leads to greater depressed feelings. A suppressive coping strategy may enhance international students' psychological distress especially when the level of acculturative stress is relatively high.

Results of the study also offered support for a significant interaction between acculturative stress and reactive coping in the prediction of depression (see Figure 2). When considering the significant effect of reactive coping among international students, the students who reported a higher use of reactive coping were more vulnerable to depression than those who reported lower use of reactive coping in face of acculturative stress. The students who make frequent use of reactive coping were the most vulnerable to depressive symptoms in face of acculturative stress. On the other hand, perhaps students who less frequently used reactive coping reported lower levels depressive symptoms.

The results of this study also revealed significant interactions between maladaptive perfectionism and acculturative stress and reflective coping in the prediction of depression (see Figures 3 and 4). Specifically, when considering the significant effect of maladaptive perfectionism, the international students who reported high maladaptive perfectionism were more vulnerable to

depression than those who report lower maladaptive perfectionism in face of increased acculturative stress. The interaction between maladaptive perfectionism and acculturative stress found in this study is consistent with the findings from Wei et. al. (2007) who found a similar interaction in a sample of Chinese international students who had been in the U.S. for a short period of time. International students who have higher maladaptive perfectionism may consider various acculturative stressors (e.g., language barriers) as the challenges to be met and consider any performance in these areas that does not meet their personal high standards as significant deficiencies or failures. In contrast, those who have lower maladaptive perfectionism may adjust their self-expectation and goals to be more reasonable and realistic (Hamachek, 1978). The result might be a more self-forgiving attitude that reduces their vulnerability to depressive symptoms (Gnilka, Ashby, & Noble, 2013). In this way, lower maladaptive perfectionism may buffer the association between acculturative stress and depression.

In this study, the results also indicated that maladaptive perfectionism significantly moderated the negative relationship between reflective coping and depression. Among international students with lower level of maladaptive perfectionism, there was no significant relationship between reflective coping and depression. However, when international students with higher levels of maladaptive perfectionism used more reflecting coping, they had relatively lower levels of depression. This finding is consistent with Hamachek's (1978) notion of neurotic perfectionism in that international students who reported greater maladaptive perfectionism may blame themselves for any perceived failures, focus on their deficiencies, and have difficulty with to self-expectations that are realistic and reachable. It is instructive that, for international students who reported lower levels of maladaptive perfectionism, there was no significant effect of reflective coping on depression. The depressive symptoms of students with lower levels of maladaptive

perfectionism may not drop significantly because they already have a tendency to set up realistic and reasonable self-expectation and focus on their strengths. These results suggest that reflective coping may be particularly important and helpful for international students with higher level of self-criticism endemic to maladaptive perfectionism. This finding also highlights the importance of assisting international students with higher levels of maladaptive perfectionism in developing healthy (e.g., reflective) coping strategies. Perhaps if someone teaches them the effective coping strategies to deal with the problems systematically, his or her vulnerability to depression might decrease significantly. Effective coping strategies may be essential for international students with higher maladaptive perfectionism to learn when dealing with acculturative stressors.

Limitations and Future Research

The data in the current study were collected using an online survey. An invitational email including the survey website was sent to participants through Offices of International Students and Services at seventeen different college campuses across the U.S. Due to the policy of international student offices at the universities. We were unable to acquire the total number of international students at each school to whom the email invitation was sent. As a result, calculating the response rate was not possible. In addition, those schools only allowed us to send out the email one time, so sending a reminder email to international students to participate the study, which has been shown to increase the response rate in web-based studies (Cook, Heath, & Thompson, 2000), was not possible.

The sample used in the current study could be biased because it only represents the international students who were interested enough in the topic to participate. More research using samples recruited by other methods (e.g., incentivized through payment or other means) could

increase the generalizability of the results. Additionally, the results of the current study are limited to international students in the United States. International students in the U.S. and international students in other countries may or may not share similar experiences. International students in the U.S. have some characteristics in common (e.g., temporary residence, academic goal) and can be considered as a minority group. However, more research is needed before generalizing the present results to other minority groups in the U.S.

The perfectionism and coping scales used in the current study were developed from an individualistic cultural perspective. As a result, there may be some cultural bias in the instruments that could undermine the validity of the two scales given that a number of participants likely viewed their potential perfectionism and coping styles from collectivistic perspective. Some researchers have developed coping measures based on collectivistic cultural perspectives, such as the Collectivistic Coping Styles Inventory (Heppner et al., 2006), the Collectivist Coping Style Measure (Moore & Constantine, 2005), and the Cross Cultural Coping Scale (Kuo, Roysircar, & Newby-Clark, 2006). Future research may want to focus specifically on international students from collectivistic cultures and include coping strategies that are culturally appropriate for those students. Recently, the Family Almost Perfect Scale (FAPS; Wang, 2010) was developed to measure family perfectionism for populations with stronger collectivistic or family values. Making use of both APS-R and FAPS might increase the validity of results with students from collectivist cultures. In this way, future research could broaden the assessing of perfectionism to include both personal and family perspectives when focusing on participants who have collectivistic culture backgrounds.

Implications for Counseling

Depression is one of the most common presenting issues when international students seek help from university counseling services. The results of the current study suggest that it may be helpful to increase both international students' and counselors' awareness of how the relationships among acculturative stress, coping strategies, and maladaptive perfectionism may be related to student's depression. When identifying international students' depressive symptoms, counselors may want to assess them for perfectionism and coping styles.

Counselors may also want to work with international students to explore the coping strategies they use to deal with acculturative stress. Our results indicated that reducing the frequency of using ineffective coping styles (e.g., suppressive and reactive coping) could serve to decrease the likelihood that acculturative stress would lead to depression. Counselors might explain to students that, instead of fading away, acculturative stress may accumulate and even become accentuated when they respond with suppressive coping strategies such as denial and avoidance. When working with international students presenting with depression, counselors may also want to assess for the tendency of students to respond to acculturative stressors with reactive coping strategies. These strategies, like responding emotionally and impulsivity, may emotionally deplete individuals and distort their other coping behaviors.

The results of this study also highlight the importance of assessing for perfectionism in international student clients who present with depressive symptoms. Consistent with other studies (e.g., Rice & Ashby, 2007), these results suggest that there are different components of perfectionism. While, in this study, there was no relationship between adaptive perfectionism and depression, there was a significant relationship between maladaptive perfectionism and depres-

sion. Therefore, clarifying the form of perfectionism with which a client presents may be important for the counselor. For clients presenting with maladaptive perfectionism, the results of this study suggest that enhancing effective coping (e.g., reflective coping) might help to decrease the depressive symptoms. Reflective coping, like planning and causal analysis, would help high maladaptive perfectionism students to reduce depressive symptoms dramatically.

International students are less likely to use counseling services than domestic students (Hyun, Quinn, Madon, & Lustig, 2007). This is particularly problematic because of these students increased likelihood of experiencing mental health concerns (e.g., Oei & Notowidjojo, 1990). College counselors could make themselves more readily accessible to the international student population by attending international student gatherings and by visiting international student organization meetings to present the services provided by counseling center. In addition, college counselors could attend international student orientations every semester where they can outline the typical challenges faced by international students, normalize these experiences, and make themselves available for questions.

Understanding the role of acculturative stress, along with its interactions with coping and maladaptive perfectionism, can better prepare college counselors to anticipate and address the concerns of international students.

Table 1. Descriptive Statistics, Intercorrelations, and Scale Alphas for Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Gender		-.04	.01	.00	-.02	-.02	-.00	-.08*	.02	-.00	.05
2. Age			.27**	-.02	.07*	.03	.07	.08*	-.05	-.05	-.02
3. Length of Residence				.03	.02	.01	.05	.03	.02	.03	.00
4. High Standards					.42*	.22*	-.01	.23**	.07	-.13**	-.05
5. Order						.07*	-.02	.24**	.02	-.16**	-.05
6. Discrepancy							-.34**	-.17**	.51**	.50**	.51**
7. Acculturative Stress								-.07	.39**	.41**	.54**
8. Reflective Coping									.01	-.23**	-.18**
9. Reactive Coping										.60**	.57**
10. Suppressive Coping											.61**
11. Depression											
Mean		26.10	2.73	39.69	20.76	46.05	86.73	23.55	13.35	13.65	15.86
SD		5.72	2.58	6.63	4.30	15.31	34.94	4.93	4.16	4.58	11.17
Range		17-54	.08-16	7-49	4-28	13-84	36-170	7-35	5-25	6-30	0-59
Skewness		1.34	1.53	-1.04	-.70	.32	.31	-.20	.26	.66	1.00
Kurtosis		3.03	3.04	1.56	.59	-.47	-.17	-.12	-.39	.05	.05
α				.85	.73	.93	.95	.76	.77	.79	.91

* $p < .05$. ** $p < .01$. Note. male coded as 1 and female coded as 2.

Table 2. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Reflecting Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	1.81	2.07	
High Standards	-0.16	0.05	-.09**
Acculturative Stress	0.23	0.01	.52***
Reflecting Coping	-0.27	0.07	-.12***
Step2			
Constant	1.00	5.86	
High Standards	0.13	0.29	.07
Acculturative Stress	0.25	0.06	.55***
Reflecting Coping	-0.23	0.24	-.10
High Standards×Acculturative Stress	0.00	0.00	-.09
High Standards×Reflecting Coping	-0.01	0.01	-.08
Acculturative Stress×Reflecting Coping	0.00	0.00	-.03
Step3			
Constant	0.16	5.95	
High Standards	-0.44	0.73	-.25
Acculturative Stress	0.26	0.07	.57***
Reflecting Coping	-0.20	0.24	-.09
High Standards×Acculturative Stress	0.00	0.01	.25
High Standards×Reflecting Coping	0.02	0.03	.25
Acculturative Stress×Reflecting Coping	0.00	0.00	-.05
High Standards×Acculturative Stress×Reflecting Coping	0.00	0.00	-.34

Note $N = 789$. $R^2 = .32$, $p < .001$ for Step 1; $\Delta R^2 = .001$, $p > .05$ for Step 2; $\Delta R^2 = .001$, $p > .05$ for Step 3; Adaptive perfectionism= APS-R high standards subscale being residualized on APS-R discrepancy subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Suppressive Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	-12.91	1.18	
High Standards	-0.05	0.05	-.03
Acculturative Stress	0.16	0.01	.35***
Suppressive Coping	1.12	0.07	.46***
Step2			
Constant	0.37	3.24	
High Standards	-0.11	0.17	-.06
Acculturative Stress	0.00	0.04	.01
Suppressive Coping	0.15	0.23	.06
High Standards×Acculturative Stress	0.00	0.00	.14
High Standards×Suppressive Coping	-0.01	0.01	-.11
Acculturative Stress×Suppressive Coping	0.01	0.00	.63***
Step3			
Constant	0.31	3.27	
High Standards	-0.16	0.42	-.09
Acculturative Stress	0.01	0.04	.01
Suppressive Coping	0.15	0.24	.06
High Standards×Acculturative Stress	0.00	0.00	.17
High Standards×Suppressive Coping	-0.01	0.03	-.08
Acculturative Stress×Suppressive Coping	0.01	0.00	.62***
High Standards×Acculturative Stress×Reflecting Coping	0.00	0.00	-.03

Note $N = 789$. $R^2 = .47$, $p < .001$ for Step 1; $\Delta R^2 = .01$, $p < .001$ for Step 2; $\Delta R^2 = .00001$, $p > .05$ for Step 3; Adaptive perfectionism= APS-R high standards subscale being residualized on APS-R discrepancy subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Adaptive Perfectionism, Acculturative Stress, Reactive Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	-13.41	1.22	
High Standards	-0.20	0.05	-.12***
Acculturative Stress	0.16	0.01	.37***
Reactive Coping	1.13	0.08	.42***
Step2			
Constant	0.37	3.28	
High Standards	-0.06	0.17	-.04
Acculturative Stress	0.00	0.04	.00
Reactive Coping	0.12	0.24	.04
High Standards×Acculturative Stress	0.00	0.00	.05
High Standards×Reactive Coping	-0.02	0.01	-.14
Acculturative Stress×Reactive Coping	0.01	0.00	.63***
Step3			
Constant	0.82	3.31	
High Standards	0.30	0.41	.17
Acculturative Stress	-0.01	0.04	-.01
Reactive Coping	0.08	0.24	.03
High Standards×Acculturative Stress	0.00	0.01	-.18
High Standards×Reactive Coping	-0.05	0.03	-.36
Acculturative Stress×Reactive Coping	0.01	0.00	.65***
High Standards×Acculturative Stress×Reactive Coping	0.00	0.00	.26

Note $N = 789$. $R^2 = .46$, $p < .001$ for Step 1; $\Delta R^2 = .02$, $p < .001$ for Step 2; $\Delta R^2 = .001$, $p > .05$ for Step 3; Adaptive perfectionism= APS-R high standards subscale being residualized on APS-R discrepancy subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Reflecting Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	3.73	1.86	
Discrepancy	0.29	0.02	.38***
Acculturative Stress	0.18	0.01	.40***
Reflecting Coping	-0.15	0.06	-.07*
Step2			
Constant	8.21	5.42	
Discrepancy	0.28	0.12	.38
Acculturative Stress	0.12	0.06	.28
Reflecting Coping	-0.35	0.23	-.15
Discrepancy×Acculturative Stress	0.00	0.00	.40***
Discrepancy×Reflecting Coping	-0.01	0.00	-.38**
Acculturative Stress×Reflecting Coping	0.00	0.00	.14
Step3			
Constant	7.88	5.54	
Discrepancy	0.37	0.30	.49
Acculturative Stress	0.13	0.06	.29*
Reflecting Coping	-0.33	0.23	-.15
Discrepancy×Acculturative Stress	0.00	0.00	.28
Discrepancy×Reflecting Coping	-0.02	0.01	-.50
Acculturative Stress×Reflecting Coping	0.00	0.00	.13
Discrepancy×Acculturative Stress×Reflecting Coping	0.00	0.00	.12

Note $N = 789$. $R^2 = .43$, $p < .001$ for Step 1; $\Delta R^2 = .02$, $p < .001$ for Step 2; $\Delta R^2 = .00007$, $p > .05$ for Step 3; Maladaptive perfectionism= APS-R discrepancy subscale being residualized on APS-R high standards subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Suppressive Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	-7.91	1.29	
Discrepancy	0.18	0.02	.24***
Acculturative Stress	0.14	0.01	.31***
Suppressive Coping	0.86	0.08	.35***
Step2			
Constant	3.91	3.77	
Discrepancy	0.09	0.09	.13
Acculturative Stress	0.01	0.04	.02
Suppressive Coping	-0.02	0.27	-.01
Discrepancy×Acculturative Stress	0.00	0.00	-.02
Discrepancy×Suppressive Coping	0.01	0.00	.15
Acculturative Stress×Suppressive Coping	0.01	0.00	.54**
Step3			
Constant	4.38	3.84	
Discrepancy	-0.01	0.19	-.02
Acculturative Stress	0.00	0.04	.01
Suppressive Coping	-0.08	0.28	-.03
Discrepancy×Acculturative Stress	0.00	0.00	.13
Discrepancy×Suppressive Coping	0.02	0.01	.32
Acculturative Stress×Suppressive Coping	0.01	0.00	.59**
Discrepancy×Acculturative Stress×Suppressive Coping	0.00	0.00	-.18

Note $N = 789$. $R^2 = .51$, $p < .001$ for Step 1; $\Delta R^2 = .02$, $p < .001$ for Step 2; $\Delta R^2 = .0002$, $p > .05$ for Step 3; Maladaptive perfectionism= APS-R discrepancy subscale being residualized on APS-R high standards subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7. Summary of Hierarchical Multiple Regression Analysis Predicting Depression From Maladaptive Perfectionism, Acculturative Stress, Reactive Coping, and Their Interactions

Variable	<i>B</i>	<i>SE B</i>	β
Step1			
Constant	-7.78	1.36	
Discrepancy	0.20	0.02	0.27***
Acculturative Stress	0.15	0.01	0.33***
Reactive Coping	0.82	0.08	0.31***
Step2			
Constant	2.46	3.80	
Discrepancy	0.01	0.09	.01
Acculturative Stress	0.02	0.04	.05
Reactive Coping	0.05	0.27	.02
Discrepancy×Acculturative Stress	0.00	0.00	.11
Discrepancy×Reactive Coping	0.01	0.00	.16
Acculturative Stress×Reactive Coping	0.01	0.00	.47**
Step3			
Constant	2.50	3.80	
Discrepancy	-0.09	0.20	-.12
Acculturative Stress	0.02	0.04	.05
Reactive Coping	0.02	0.28	.01
Discrepancy×Acculturative Stress	0.00	0.00	.26
Discrepancy×Reactive Coping	0.02	0.01	.30
Acculturative Stress×Reactive Coping	0.01	0.00	.49**
Discrepancy×Acculturative Stress×Reactive Coping	0.00	0.00	-.16

Note $N = 789$. $R^2 = .50$, $p < .001$ for Step 1; $\Delta R^2 = .02$, $p < .001$ for Step 2; $\Delta R^2 = .0002$, $p > .05$ for Step 3; Maladaptive perfectionism= APS-R discrepancy subscale being residualized on APS-R high standards subscale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

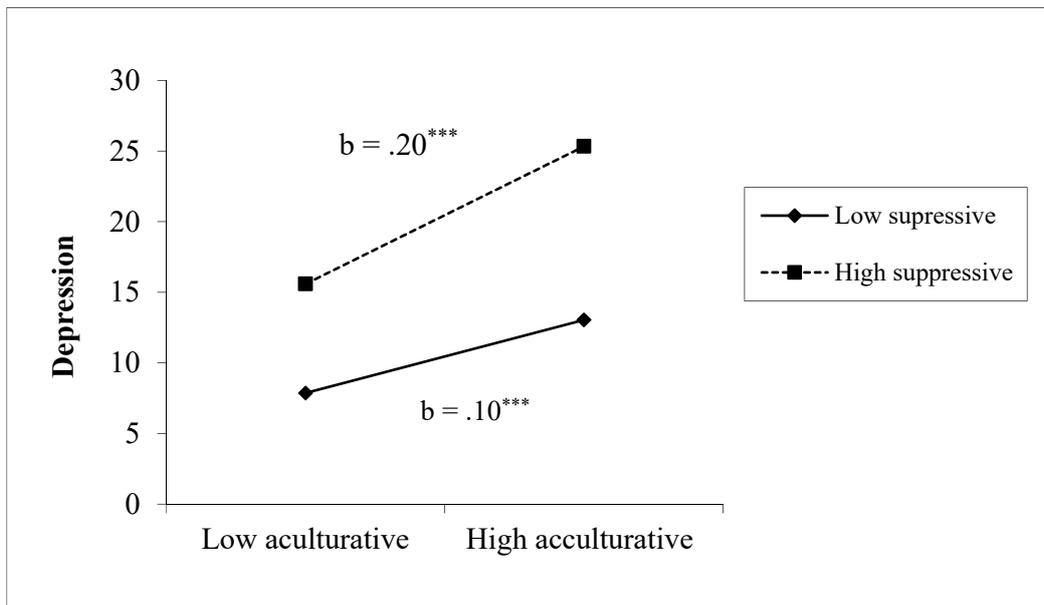


Figure 1. The interaction effect of acculturative stress and suppressive coping on depression.
 $*** p < .001$.

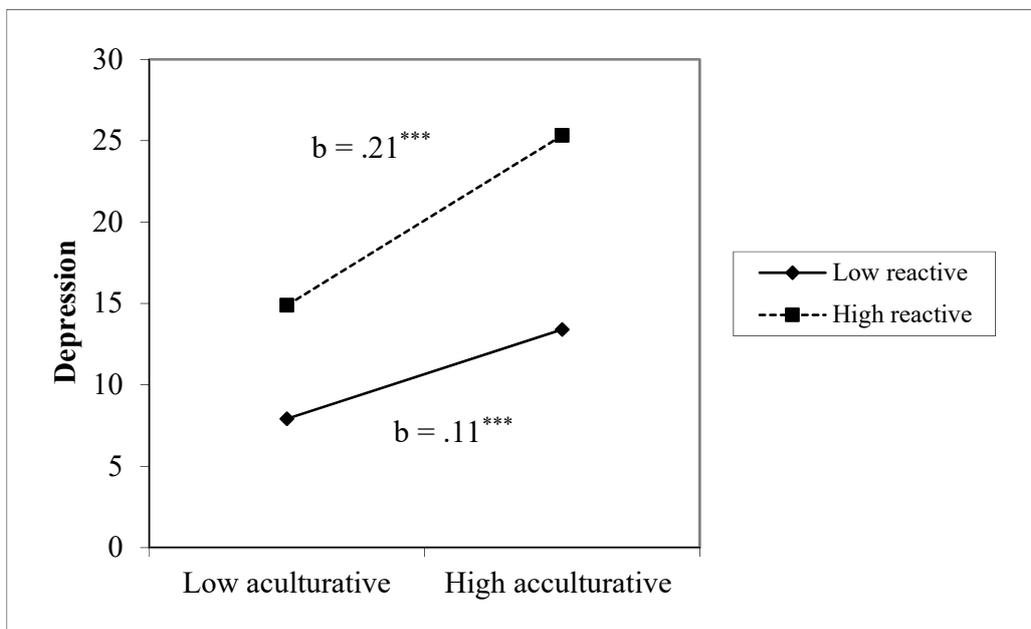


Figure 2. The interaction effect of acculturative stress and reactive coping on depression.
 $*** p < .001$.

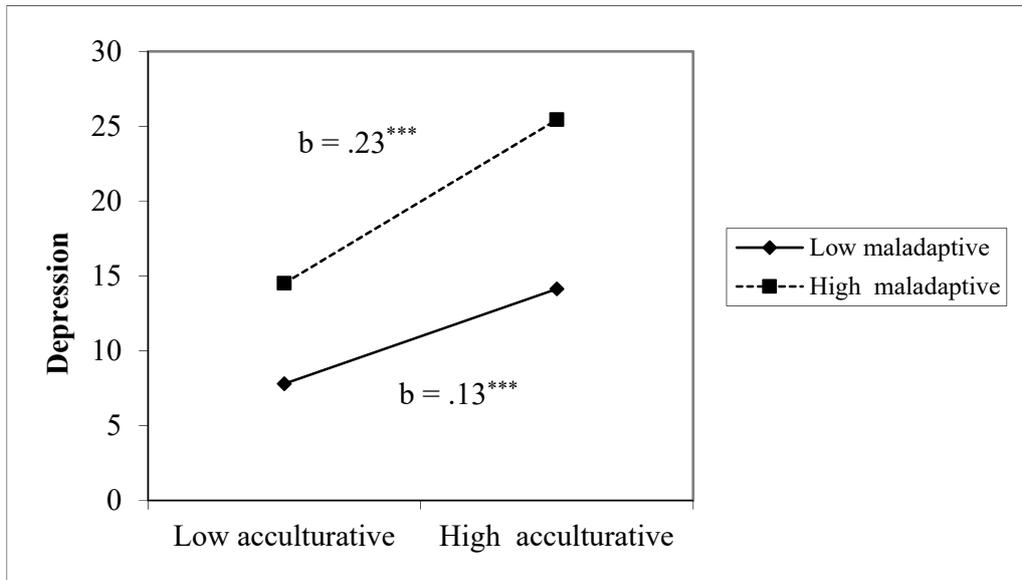


Figure 3. The interaction effect of acculturative stress and maladaptive perfectionism on depression.

*** $p < .001$

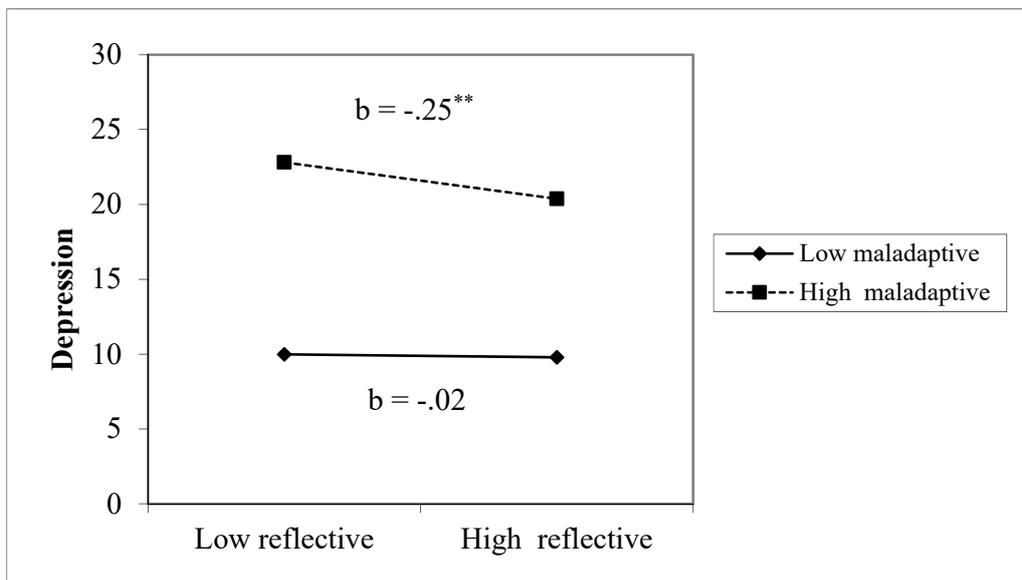


Figure 4. The interaction effect of reflective coping and maladaptive perfectionism on depression.

** $p < .01$

References

- Aguinis, H., Beaty, J. C., Boik, R. J., & Pierce, C. A. (2005). Effect size and power in assessing moderating effects of categorical variables using multiple regression: A 30-year review. *Journal of Applied Psychology, 90*, 94-107.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA, US: Sage Publications, Inc.
- Ashby, J. S., Dickinson, W. L., Gnilka, P. B., & Noble, C. L. (2011). Hope as a mediator and moderator of multidimensional perfectionism and depression in middle school students. *Journal of Counseling & Development, 89*(2), 131–139.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.
- Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review, 21*(3), 491–511.
- Blatt, S. J., Zuroff, D. C., Bondi, C. M., Sanislow, C. A. I., & Pilkonis, P. A. (1998). When and how perfectionism impedes the brief treatment of depression: Further analyses of the National Institute of Mental Health Treatment of Depression Collaborative Research Program. *Journal of Consulting and Clinical Psychology, 66*(2), 423–428.
- Champoux, J. E., & Peters, W. S. (1987). Form, effect size and power in moderated regression analysis. *Journal of Occupational Psychology, 60*(3), 243–255.
- Chang, Y., Lan, Y.-L., Lin, H.-Y., & Heppner, P. P. (2012). Psychometric Analyses of the Problem-Focused Style of Coping (PF-SOC) Scale with Taiwanese Samples. *Journal of Psychoeducational Assessment, 30*(2), 171–180.

- Chaplin, W. F. (1991). The next generation of moderator research in personality psychology. *Journal of Personality, 59*(2), 143–178.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Constantine, M. G., Okazaki, S., & Utsey, S. O. (2004). Self-concealment, social self-efficacy, acculturative stress, and depression in African, Asian, and Latin American international college students. *American Journal of Orthopsychiatry, 74*(3), 230–241.
- Cook, C., Heath, F., & Thompson, R. (2000). A meta-analysis of response rates in web- or internet-based surveys. *Educational & Psychological Measurement, 60*(6), 821.
- Crockett, L. J., Iturbide, M. I., Torres Stone, R. A., McGinley, M., Raffaelli, M., & Carlo, G. (2007). Acculturative stress, social support, and coping: Relations to psychological adjustment among Mexican American college students. *Cultural Diversity and Ethnic Minority Psychology, 13*(4), 347–355.
- Driscoll, M. W., & Torres, L. (2013). Acculturative stress and Latino depression: The mediating role of behavioral and cognitive resources. *Cultural Diversity and Ethnic Minority Psychology, 19*(4), 373–382.
- Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping, and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*(4), 437–453.

- Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*(1), 234–252.
- Duru, E., & Poyrazli, S. (2007). Personality dimensions, psychosocial-demographic variables, and English language competency in predicting level of acculturative stress among Turkish international students. *International Journal of Stress Management, 14*(1), 99–110.
- Gnilka, P. B., Ashby, J. S., & Noble, C. M. (2012). Multidimensional perfectionism and anxiety: differences among individuals with perfectionism and tests of a coping-mediation model. *Journal of Counseling & Development, 90*(4), 427–436.
- Gnilka, P. B., Ashby, J. S., & Noble, C. M. (2013). Adaptive and maladaptive perfectionism as mediators of adult attachment styles and depression, hopelessness, and life satisfaction. *Journal of Counseling & Development, 91*(1), 78–86.
- Gosling, S. D., Vazire, S., Srivastava, S., & Oliver, J. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about internet questionnaires. *American Psychologist, 59*(2), 93–104.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology: A Journal of Human Behavior, 15*(1), 27–33.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY, US: Guilford Press.
- Heppner, P. P., Cook, S. W., Wright, D. M., & Johnson, W. C. (1995). Progress in resolving problems: A problem-focused style of coping. *Journal of Counseling Psychology, 42*(3), 279–293.

- Heppner, P. P., Heppner, M. J., Lee, D., Wang, Y.-W., Park, H., & Wang, L. (2006). Development and validation of a collectivist coping styles inventory. *Journal of Counseling Psychology, 53*(1), 107–125.
- Hewitt, P. L., Flett, G. L., & Endler, N. S. (1995). Perfectionism, coping, and depression symptomatology in a clinical sample. *Clinical Psychology & Psychotherapy, 2*(1), 47–58.
- Holahan, C. J., Moos, R. H., & Bonin, L. (1997). Social support, coping, and psychological adjustment: A resource model. In G. R. Pierce, B. Lakey, I. G. Sarason, & B. R. Sarason (Eds.), *Sourcebook of social support and personality*. (pp. 169–186). New York, NY US: Plenum Press.
- Hsiao, Y.-S., Ashby, J. S., Gnilka, P. B., & Noble, C. (2011, August). *Acculturation, acculturative stress, social support, and career outcome expectations among international students*. Poster session presented at the American Psychological Association Annual Conference, Washington, DC.
- Hyun, J., Quinn, B., Madon, T., & Lustig, S. (2007). Mental health need, awareness, and use of counseling services among international graduate students. *Journal of American College Health, 56*(2), 109–118.
- Institute of International Education. (2014). *Open Doors 2014: Reports on international education exchange*. New York: Institute of International Education.
- Kuo, B. C. H., Roysircar, G., & Newby-Clark, I. R. (2006). Development of the Cross-Cultural Coping Scale: Collective, Avoidance, and Engagement Coping. *Measurement and Evaluation in Counseling and Development, 39*(3), 161–181.

- Lee, J.-S., Koeske, G. F., & Sales, E. (2004). Social support buffering of acculturative stress: a study of mental health symptoms among Korean international students. *International Journal of Intercultural Relations*, 28(5), 399–414.
- Moore, J. L., & Constantine, M. G. (2005). Development and initial validation of the collectivistic coping styles measure with African, Asian, and Latin American international students. *Journal of Mental Health Counseling*, 27(4), 329–347.
- Mori, S. (2000). Addressing the mental health concerns of international students. *Journal of Counseling & Development*, 78(2), 137–144.
- Nilsson, J. E., Berkel, L. A., Flores, L. Y., & Lucas, M. S. (2004). Utilization rate and presenting concerns of international students at a university counseling center: implications for outreach programming. *Journal of College Student Psychotherapy*, 19(2), 49–58.
- Nishi, D., Uehara, R., Kondo, M., & Matsuoka, Y. (2010). Reliability and validity of the Japanese version of the Resilience Scale and its short version. *BMC Research Notes*, 3, 310–315.
- Noble, C. L., Ashby, J. S., & Gnilka, P. B. (2014). Multidimensional perfectionism, coping, and depression: Differential prediction of depression symptoms by perfectionism type. *Journal of College Counseling*, 17(1), 80–94.
- Oei, T. P., & Notowidjojo, F. (1990). Depression and loneliness in overseas students. *International Journal of Social Psychiatry*, 36(2), 121–130.
- Poyrazli, S., Kavanaugh, P. R., Baker, A., & Al-Timimi, N. (2004). Social support and demographic correlates of acculturative stress in international students. *Journal of College Counseling*, 7(1), 73.

- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385–401.
- Rice, K. G., & Ashby, J. S. (2007). An efficient method for classifying perfectionists. *Journal of Counseling Psychology, 54*(1), 72–85.
- Sandhu, D. S., & Asrabadi, B. R. (1998). An acculturative stress scale for international students: A practical approach to stress measurement. *In Evaluating stress: A book of resources* (Vol. 2, pp. 1–33). Landham, MD: Scarecrow Press.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement & Evaluation in Counseling & Development, 34*(3), 130.
- Sümer, S., Poyrzli, S., & Grahame, K. (2008). Predictors of depression and anxiety among international students. *Journal of Counseling & Development, 86*(4), 429–437.
- Wang, K. T. (2010). The Family Almost Perfect Scale: Development, psychometric properties, and comparing Asian and European Americans. *Asian American Journal of Psychology, 1*(3), 186–199.
- Wang, K. T., Slaney, R. B., & Rice, K. G. (2007). Perfectionism in Chinese university students from Taiwan: A study of psychological well-being and achievement orientation. *Personality and Individual Differences, 42*, 1279–1290.
- Wei, M., Heppner, P. P., Mallen, M. J., Ku, T.-Y., Liao, K. Y.-H., & Wu, T.-F. (2007). Acculturative stress, perfectionism, years in the United States, and depression among Chinese international students. *Journal of Counseling Psychology, 54*(4), 385–394.
- Wei, M., Heppner, P. P., Russell, D. W., & Young, S. K. (2006). Maladaptive perfectionism and ineffective coping as mediators between attachment and future depression: A prospective analysis. *Journal of Counseling Psychology, 53*(1), 67–79.

- Wei, M., Ku, T.-Y., Russell, D. W., Mallinckrodt, B., & Liao, K. Y.-H. (2008). Moderating effects of three coping strategies and self-esteem on perceived discrimination and depressive symptoms: A minority stress model for Asian international students. *Journal of Counseling Psychology, 55*(4), 451–462.
- Yeh, C. J., & Inose, M. (2003). International students' reported English fluency, social support satisfaction, and social connectedness as predictors of acculturative stress. *Counselling Psychology Quarterly, 16*(1), 15.
- Yi, J. K., Lin, G. J.-C., & Kishimoto, Y. (2003). Utilization of counseling services by international students. *Journal of Instructional Psychology, 30*(4), 333–342.