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**PERFECTIONISM, DEPRESSION, AND SELF-ESTEEM:  
A COMPARISON OF ASIAN AND CAUCASIAN AMERICANS  
FROM A COLLECTIVISTIC PERSPECTIVE**

A Thesis in

Counseling Psychology

by

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## ABSTRACT

This study examined perfectionism from both an individual's perspective and their perceived level of perfectionism from their family. Collectivistic values were measured to further examine how these values moderate the effects of personal and family perfectionism on depression and self-esteem. Samples of Asians/Asian-Americans and Caucasian-Americans were used to examine how individual and family perfectionism are differentially related to self-esteem and depression for these two groups.

The relationships between the study variables were examined through path analysis. The hypothesis of family perfectionism having a stronger relationship to self-esteem and depression for Asians/Asian-Americans than for Caucasian-Americans was not supported. Personal perfectionism did not have a stronger relationship to self-esteem and depression for Caucasian-Americans than for Asians/Asian-Americans. Although collectivism was expected to be a moderator in the relationships of family perfectionism with depression, self-esteem, and personal perfectionism, Caucasian-Americans and Asians/Asian-Americans did not differ on their Collectivism scores. The results questioned the notion of whether Asian-Americans are really more collectivistic than Caucasian-Americans or the validity of Triandis' (1995) Individualism-Collectivism Scale.

This study provided additional support for the psychometric properties of the Almost Perfect Scale-Revised and Family version (APS-R, APS-F). The results also provided strong support for Asian-Americans reported higher Personal and Family Discrepancy levels than Caucasian-Americans, which is consistent with past studies. There seems to be a pattern of Asian-Americans reporting higher scores on items/scales that describe maladaptive aspects of

mental health, which is worth further exploration. Limitations of this study and directions for future studies are discussed.

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## **Chapter 1**

### **Introduction**

A number of scholars have noted that the vast majority of published studies on perfectionism have utilized majority samples from U.S. universities (Flett, Greene, & Hewitt, 2004; Grzegorek, Slaney, Franze, & Rice, 2004; Mobley, Slaney, & Rice, 2004; Slaney, Rice, & Ashby, 2002). Mobley et al. (2004) referred to a cultural divide in the perfectionism literature that sharply constrains generalizing beyond Caucasian-American university students. Studies of perfectionism that investigate and compare its relevance for diverse ethnic, racial, and cultural groups are needed.

Three studies were located (Castro & Rice, 2003; Chang, 1998; Kawamura, Frost, & Harmatz, 2002) that compared different ethnic groups using the Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990). These studies found that Asian-Americans reported higher scores than other ethnic groups on several dimensions of perfectionism. Asian-Americans had significantly higher scores on four FMPS subscales – Concern Over Mistakes, Doubts About Actions, Parental Criticism, and Parental Expectations compared with Caucasians-Americans (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002) and African-Americans (Castro & Rice, 2003). These subscales are viewed as measuring negative aspects of perfectionism.

Although early conceptualizations and measures of perfectionism assumed it was unidimensional and negative, various factor analytic studies (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Slaney, Ashby, & Trippi, 1995; Rice, Ashby, & Slaney, 1998) have found both positive and negative aspects. This has been true for all three perfectionism measures (Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Mobley, Trippi, Ashby, & Johnson, 1996). Among the

various perfectionism subscales, six have been categorized as being positive: High Standards and Order of the Almost Perfect Scale-Revised (APS-R; Slaney et al., 1996), Personal Standards and Organization of the FMPS, and Self-Oriented Perfectionism and Other-Oriented Perfectionism of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS). Six subscales have been categorized as capturing the negative aspects of perfectionism: Discrepancy of the APS-R; Concern over Mistakes, Parental Criticism, Parental Expectations, and Doubts about Actions of the FMPS; and Socially-Prescribed Perfectionism of the HMPS.

Although Asian-Americans reported higher scores on the four negative subscales of the FMPS, there was no significant cross-ethnic-group difference on the positive FMPS subscale – Personal Standards (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002). These results tentatively suggest that there are ethnic group differences on perfectionism and that Asian Americans may suffer more from the deleterious aspects of perfectionism than do other ethnic groups.

Interestingly, two out of the four FMPS subscales on which Asian-Americans reported higher scores measured parental aspects of perfectionism. Several studies of Asians examined the parental aspects of perfectionism. Cheng, Chong, and Wong (1999) used a Chinese translation of the FMPS to examine the factor structure of the Chinese FMPS in a sample of 947 adolescents from Hong Kong. Five of the six original factors emerged; the Parental Criticism factor was not supported. The differences in the factor structure of the Chinese FMPS suggest that Chinese children may perceive their parents differently compared to their U.S. counterparts. In addition, Wang, Slaney, and Rice (2007) examined groups of perfectionists with 273 Chinese college students. Cluster analysis with the APS-R High Standards and Discrepancy subscales yielded four groups of perfectionists. In addition to the three groups (i.e., adaptive, maladaptive,

and non-perfectionists) found with U.S. samples, a fourth group with low-High Standards scores and higher-Discrepancy scores emerged. This fourth group had the most participants but their scores on the High Standards scale suggested that they did not set high standards for themselves. Paradoxically, however, their scores on the Discrepancy scale were elevated. This fourth group's scores on the Social-Oriented and Individual-Oriented Achievement Motivation Scales (SOAM, IOAM; Yu & Yang, 1987) suggested that they may have had achievement motivations that were more socially-oriented than individually-oriented. This implies that participants in this fourth group may perceive external expectations or standards that are likely to come from family, parents, or significant others.

These studies on Asians (Cheng et al., 1999; Wang et al., 2007) and Asian-Americans (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002) point to the centrality of the family and parenting in the East Asian culture that has been influenced by Confucian philosophy. "Filial piety" is the prime guiding principle of socialization practices (Shek & Chan, 1999). Devotion to parents is highly valued and roles inside the family extend to relationships outside the family (Yang, 1997). The behavior of an Asian child reflects on the reputation and honor of the entire family. Parents emphasize their children's obligations toward the family and failure to meet these obligations may result in a loss of face. There is a widely held perception that Chinese parents use shaming or the threat of loss of face as a principle technique for controlling children's behaviors (Yeh & Hwang, 1999). Highly developed feelings of obligation and concepts of shame and shaming are used to reinforce expectations and proper behaviors within and outside of Asian families (Ho, 1989; Fung, Lieber, & Leung, 2003). This shaming process focuses on discrepancies that exist between the behaviors the parents expect of the child and the child's actual behaviors. This focus on the discrepancy between the expected and actual

behaviors of children that occurs in shaming seems reminiscent of the concept of discrepancy that is seen as the defining negative aspect of perfectionism in the APS-R. Therefore, in this study, perfectionism will be measured by the APS-R.

In this study, perfectionistic discrepancy will not only be examined from one's personal perspective but also from a perceived family perspective. Compared to Caucasian-Americans, Asians and Asian-Americans have higher perceived parental expectations and tend to be more strongly affected by parental expectations (Chung, Walkey, & Bemak, 1997; Crystal, Chen, Fuligni, & Stevenson, 1994). Moreover, cross-cultural studies indicate that Asian and Asian-American parents are more dissatisfied with their children's performances (Aldwin & Greenberger, 1987; Chung et al., 1997; Crystal et al., 1994; Oishi & Sullivan, 2005). This may imply that family-discrepancy, the perception that one is not meeting the standards set by one's family, may be as relevant or even more relevant to the psychological distress of Asians or Asian-Americans than is self-discrepancy.

#### *The Present Study and Research Questions*

While past perfectionism studies on Asian-Americans (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002) and Asians (Cheng et al., 1999; Wang et al., 2007) have pointed to an interesting family factor, the present study aims to broaden and enhance the current Asian-American perfectionism literature in several ways. First, unlike previous perfectionism studies that examined perfectionism from an individual's perspective, the present study will also include variables measuring how individuals perceive their families as sources of their perfectionistic standards. This seems relevant to Asian-Americans based on the literature that suggests that they are more collectivistic and give greater consideration to their families and significant others in making decisions (Triandis, 1995). Secondly, the present study seeks to expand the current

literature by looking at how individuals' values may influence the effects of perfectionism on their mental health. Collectivistic values will be measured to further examine how these values moderate the effects of personal and family perfectionism on depression and self-esteem. Finally, to increase variability and to examine cultural differences, two samples will be included in this study. Comparable samples of Asians/Asian-Americans and Caucasian-Americans will be used to examine how individual and family perfectionism are differentially related to self-esteem and depression for these two groups.

The relationships between the study variables will be examined through path analysis. Family perfectionism is hypothesized to have a stronger relationship to self-esteem and depression for Asians/Asian-Americans than for Caucasian-Americans. In contrast, personal perfectionism is hypothesized to have a stronger relationship to self-esteem and depression for Caucasian-Americans than for Asians/Asian-Americans. Collectivism is also expected to be a moderator in the relationships of family perfectionism with depression, self-esteem, and personal perfectionism. For participants with higher collectivistic values, the relationships between family perfectionism, depression, self-esteem, and personal perfectionism will be stronger than it is for participants with lower collectivistic values.

## Chapter 2

### Literature Review

The conceptual framework that informs this study involves the integration of three major research areas. This section will start with a literature review of the overall research on *perfectionism*, which has mostly utilized majority samples from Caucasian-American university students. The multidimensionality of perfectionism, which includes adaptive and maladaptive aspects, will be emphasized. A review of cross-cultural studies that compare Asian-Americans with Caucasian-Americans on perfectionism and related areas will follow. Perfectionism studies on Asians and Asian-Americans will also be included to provide a closer examination of cultural influences. The lack of multicultural studies has been a weakness in the perfectionism field and is addressed by incorporating *Asian and Asian-American studies* on related personality and mental health areas. Finally, the *collectivism and family relationship* literature will be reviewed.

#### Perfectionism

##### *Defining and Assessing Perfectionism*

Over the past few decades, the construct of perfectionism has been receiving increased attention and its definition has also been evolving. Early researchers viewed perfectionism as a solely negative construct that was associated with psychological problems. Hollender (1965) defined perfectionism as demanding a “higher quality of performance than is required by the situation” (p. 94). Pacht (1984) defined it as “the striving for that nonexistent perfection that keeps people in turmoil” (p. 386). Burns (1980) described perfectionists as “those whose standards are high beyond reach or reason” and stated that their drive to excel was only “self-defeating” (p. 34). Burns also developed the first measure of perfectionism by modifying a portion of the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). Burn’s

Perfectionism Scale (BPS; Burns, 1980) took a one-dimensional approach to measuring perfectionism.

Later researchers took a multidimensional approach to assessing perfectionism. Two Multidimensional Perfectionism Scales were developed in the early 1990s (Frost et al., 1990; Hewitt & Flett, 1991). Frost and his colleagues defined perfectionism as “the setting of excessively high personal standards for performance” accompanied by “the tendency for overly critical evaluations of one’s own behavior” (p. 450). Their Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) includes six subscales: Personal Standards, Organization, Doubts about Actions, Concern Over Mistakes, Parental Expectations, and Parental Criticism. Hewitt and Flett’s Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991) addresses the intrapersonal and interpersonal dimensions of perfectionism. The HMPS includes three subscales: Self-Oriented, Other-Oriented, and Socially-Prescribed Perfectionism. Self-Oriented Perfectionism involves setting extremely high standards for one’s self and striving to attain perfection. Other-Oriented Perfectionism involves setting high standards for significant others and placing importance on them being perfect. Socially-Prescribed Perfectionism involves perceiving others as having extremely high standards for oneself and having the need to meet these expectations. Hewitt and Flett viewed all three HMPS perfectionism dimensions as being associated with maladjustments and interpersonal frustrations.

The widespread use of these two perfectionism measures led to a general acceptance of perfectionism as a multidimensional construct. However, a major critique of these two measures is that they assess a broader range of features than what have been described as characteristics of perfectionism by clinicians and early theorists (Shafran, Cooper & Fairburn, 2002; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Slaney et al. noted that several FMPS subscales seemed to

address *causes* (Parental Criticism and Parental Expectations) and *results* (Concern Over Mistakes and Doubts About Actions) of perfectionism rather than its essential nature. Shafran et al. (2002) argued that other-oriented perfectionism and socially-prescribed perfectionism were associated constructs rather than integral elements of perfectionism.

In an attempt to develop a measure that assessed the essential nature of perfectionism, Slaney and his colleagues surveyed dictionary definitions of perfectionism. They concluded that there were two core features of perfectionism (Slaney et al., 2001). One was the “extreme or excessive striving for perfection” and the other was “a disposition to regard anything short of perfection as unacceptable” (p. 131). Based on these two definitions, high standards and discrepancy were used as the two essential dimensions of perfectionism while developing their perfectionism scale - The Almost Perfect Scale-Revised (APS-R; Slaney et al., 1996). In addition, they interviewed a criterion group of 37 perfectionists (Slaney & Ashby, 1996). When these participants described themselves or defined perfectionism, orderliness or organization was frequently mentioned as an essential aspect. Slaney and his colleagues included orderliness as the third feature of perfectionism in the APS-R. In the APS-R, discrepancy is defined as the perceived difference between the standards one has set for one’s own behavior and actual performance; it is measured by the Discrepancy subscale. The other APS-R subscales are High Standards, measuring the standards one sets for performance, and Order, a tendency to value a sense of order and organization. A main characteristic of the APS-R is the clear distinction between the negative and positive aspects of perfectionism. High Standards and Order reflect the positive aspects of perfectionism and Discrepancy defines the negative aspect of perfectionism. The following section will provide a more detailed review of the positive and negative aspects of perfectionism.

### *Negative & Positive Aspects of Perfectionism*

In contrast to early views of perfectionism that were exclusively negative and associated with psychological maladjustment, perfectionism has been found to be both negative and positive through various factor analytic studies (Frost et al., 1993; Slaney et al., 1995; Suddarth & Slaney, 2001). Two higher-order factors that indicated positive and negative aspects of perfectionism were consistently found. Frost et al. (1993) factor analyzed the FMPS and the HMPS using a principle-factor solution with both orthogonal and oblique rotations. They found two unambiguous factors, which they labeled as Maladaptive Evaluation Concerns and Positive Striving. The Maladaptive Evaluation Concerns factor consisted of four FMPS dimensions, Concern over Mistakes, Parental Criticism, Parental Expectations, and Doubts about Actions, and one HMPS dimension, Socially-Prescribed Perfectionism. The Positive Striving factor consisted of two FMPS dimensions, Personal Standards and Organization, and two HMPS dimensions, Self-Oriented Perfectionism and Other-Oriented Perfectionism. The Maladaptive Evaluation Concerns factor was significantly and positively correlated with the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbauch, 1961) and the Negative Affect subscale of the Positive Affect-Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988) and therefore viewed as the negative aspect of perfectionism. The Positive Striving factor was related to the Positive Affect Scale of the PANAS and was viewed as the positive aspect of perfectionism.

Slaney et al. (1995) factor analyzed the FMPS, HMPS, along with the original APS (Slaney & Johnson, 1992). The results revealed a two-factor solution. The FMPS and HMPS subscales loaded onto the same adaptive and maladaptive factors as were found in the Frost et al. (1993) study. The APS Standards and Order subscale loaded onto the adaptive factor, while the

other three APS subscales, Relationship, Anxiety, and Procrastination, loaded onto the maladaptive factor.

Suddarth and Slaney (2001) factor analyzed the FMPS, HMSP and the APS-R in a sample of 196 undergraduates (41 men, 151 women, 4 missing gender information), in which the majority (94%) self-identified as White. A principle-components factor analysis with a varimax rotation was conducted on the 12 subscales of these three perfectionism scales and a three-factor solution was extracted. The first factor, labeled as Maladaptive, accounted for 35.5% of the variance and consisted of six subscales: the same five FMPS and HMPS subscales as in previous studies (Frost et al., 1993; Slaney et al., 1995) along with the Discrepancy subscale from the APS-R. The second factor, labeled as Adaptive, accounted for 21.8% of the variance and consisted of four subscales: Personal Standards from the FMPS; Self-Oriented and Other-Oriented Perfectionism from the HMPS; and High Standards from the APS-R. The third factor, labeled as Order/Organization, accounted for 10.6% of the variance and consisted of two subscales: Organization from the FMPS and Order from the APS-R. Multiple regression analyses were performed using these three factors as predictors for measures of locus of control, severity of psychological distress, and trait anxiety as the dependent variables. These variables were measured by the Rotter Internal-External Locus of Control Scale (Rotter, 1966), the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1982), and the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970). The Maladaptive factor was a significant predictor for all three dependent variables. The Adaptive factor had a negative relationship with the external dimension of locus of control; the Maladaptive factor had a positive relationship with external locus of control. The Adaptive factor was not a significant predictor for the other

two dependent variables, nor was the Order/Organization factor a significant predictor for any of the three dependent variables.

The positive and negative aspects of perfectionism were also supported through confirmatory factor analyses (CFA) by Bieling, Israeli, and Antony (2004) and Rice et al. (1998). Bieling and his colleagues used the FMPS and HMPS subscales and compared three hypothesized models. The two factor model based on past results (e.g. Frost et al., 1993) was a better fit with their data. They also ran regressions with the adaptive and maladaptive factors as predictors of Depression, Anxiety, and Stress measured by the Depression Anxiety and Stress Scales (DASS; Lovibond & Lovibond, 1995). The maladaptive factor significantly predicted Depression, Anxiety, and Stress. Conversely, the adaptive factor was not a significant predictor for any of these dependent variables. Rice et al. (1998) included the FMPS and the original APS in their analysis. The Personal Standards and Organization subscales of the FMPS and the Standards and Order subscale of the APS were constrained to load onto the Adaptive Perfectionism factor. The other four FMPS subscales, Parental Criticism, Parental Expectations, Concern Over Mistakes, and Doubts About Actions, and the Difficulty in Relationships, and Anxiety subscales of the APS were constrained to load onto the Maladaptive Perfectionism factor. The APS Procrastination subscale was allowed to load on both factors. Model fit indexes indicated adequate fit for the first random sample of study participants. The CFA model was further supported by cross validation analysis with the second random sample of participants.

There is strong evidence in support of the positive aspects of perfectionism despite the literature's focus on perfectionism's relationships with psychological maladjustments, such as depression, anxiety, eating disorders, obsessive-compulsive disorder, dysfunctional attitudes, and substance abuse (see Blatt, 1995; Shafran & Mansell, 2001, for a review). Based on the distinct

positive and negative aspects of perfectionism, researchers have also been able to identify different types of perfectionists.

### *Different Types of Perfectionists*

Hamacheck (1978) proposed two different types of perfectionists, neurotic and normal, through his clinical observations. The main difference between these two types of perfectionists is the way an individual responds to not achieving personal standards. Neurotic perfectionists worry about perceived deficiencies and focus on how to avoid making mistakes. In contrast, normal perfectionists attend more to their strengths and concentrate on how to do things correctly.

Two types of perfectionists and a group of nonperfectionists have been identified through cluster analyses with the FMPS and the APS-R (Grzegorek et al., 2004; Parker, 1997; Rice & Dellwo, 2002; Rice & Mirzadeh, 2000; Rice & Slaney, 2002; Slaney, Pincus, Uliaszek, and Wang, 2006). Normal perfectionists, also referred to as adaptive or healthy perfectionists, had high scores on the FMPS and APS-R subscales that were identified as measuring positive aspects of perfectionism. Neurotic perfectionists, also referred as maladaptive or dysfunctional perfectionists, scored high on all perfectionism subscales, regardless of their positive or negative aspects. A group of nonperfectionists was distinguished by having lower FMPS and APS-R subscale scores.

Three studies used the FMPS to cluster participants into different groups of perfectionists (Parker, 1997; Rice & Dellwo, 2002; Rice & Mirzadeh, 2000). Parker studied 820 academically talented six graders (63% male and 87% White). Participants were grouped into three groups of perfectionists and labeled according to their scores on the FMPS. Healthy perfectionists were characterized by having the highest score on the FMPS Organization subscale and the lowest scores on the Concern over Mistakes, Doubts about Actions, and Parental Criticism subscales.

Healthy perfectionists also had the highest score ( $M=25.8$ ,  $SD=3.5$ ) on the Rosenberg Self Esteem Scale (RSES; Rosenberg, 1965). Dysfunctional perfectionists were characterized by having the highest scores on the Personal Standards, Concern over Mistakes, Parental Expectations, Parental Criticisms and Doubts about Actions subscales. This group of dysfunctional perfectionists reported the lowest RSES scores ( $M=21.8$ ,  $SD=4.7$ ).

Nonperfectionists were characterized by having low scores on FMPS Personal Standards, Parental Expectations, and Organization subscales. Rice and Mirzadeh replicated the three groups of perfectionists in two samples of college students ( $N = 179$  &  $218$ ). These groups of perfectionists were compared on depression, measured by the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). The Maladaptive (dysfunctional) perfectionists ( $M=20.5$ ,  $SD=10.1$ ) reported significantly higher CES-D depression scores than the adaptive (healthy) perfectionists ( $M=11.9$ ,  $SD=9.0$ ),  $t(153)=5.65$ ,  $p<.001$ . Consistently, in Rice and Dellwo's study with 312 college students, maladaptive perfectionists reported significantly higher CED-D depression scores and lower RSES self-esteem scores compared to adaptive perfectionists and nonperfectionists.

Most studies comparing different types of perfectionists have used the APS-R. Rice and Slaney (2002) studied two groups of college students ( $N = 258$  &  $375$ ; 86% & 92% White, respectively) by using cluster analyses with the APS-R. The perfectionist groups were based on their APS-R subscale scores. In both studies, maladaptive perfectionists differed from adaptive perfectionists by having higher scores on the Discrepancy subscale. Nonperfectionists had lower scores on the High Standards and Order subscales when compared with the two groups of perfectionists while their Discrepancy scores were between the scores for the adaptive and maladaptive perfectionists. Adaptive perfectionists reported higher RSES self-esteem scores,

PANAS Positive Affect scores, and GPAs than the other two groups. In contrast, maladaptive perfectionists reported significantly lower scores on the RSES than adaptive and non-perfectionists. Maladaptive perfectionists also reported higher scores on the CES-D Depressed Affect subscale, the CES-D Somatic and Vegetative Activity subscale, and both the STAI Trait and State Anxiety subscales than the two other groups. Adaptive perfectionists did not significantly differ from nonperfectionists on their CES-D Depressed Affect and CES-D Somatic and Vegetative Activity scores, but nonperfectionists reported higher scores on STAI Trait and State Anxiety when compared to adaptive perfectionists.

Grzegorek et al. (2004) replicated the three groups of perfectionists by using the APS-R in a sample of 273 college students that were mostly White (91%). The three groups of perfectionists were compared on self-esteem and depression. Self-Esteem was measured by the RSES and two types of depression were measured by the Self-Criticism Depression and Dependency Depression subscales of the Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976). As hypothesized, when compared with the other two groups, maladaptive perfectionists had higher scores on Self-Criticism Depression [ $F(2,226)=18.90$ ,  $p<.001$ ], but not on Dependent Depression [ $F(2,226)=.87$ ]. Adaptive perfectionists ( $M=34.62$ ,  $SD=4.72$ ) reported higher RSES self-esteem scores than maladaptive ( $M=29.64$ ,  $SD=4.75$ ) and non- ( $M=29.79$ ,  $SD=5.14$ ) perfectionists. This study not only supported the different types of perfectionism, but also distinguished the self-critical aspect of depression as being more related to maladaptive perfectionism.

The relationship between perfectionism and interpersonal problems was examined by Slaney et al. (2006). The sample included 279 university students that were predominantly White (94%). Participants completed the APS-R, the Dyadic Almost Perfect Scale (DAPS; Shea

& Slaney, 1999), and the Interpersonal Problems Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990). The difference between the APS-R and DAPS is that the APS-R measures perfectionism that is self-focused and the DAPS measures the degree of perfectionism one expects from significant or intimate others. Based on the APS-R subscale scores, participants were grouped into adaptive, maladaptive, and non-perfectionists using cut-off scores derived from a previous discriminant function analysis (Ashby et al., 2004). For dyadic perfectionism, participants were grouped into three similar perfectionist types by using cluster analysis with the DAPS subscale scores. Interpersonal styles were examined for each group of perfectionists by using their IIP-C profiles. For the APS-R perfectionist groups, adaptive perfectionists exhibited a friendly submissive interpersonal style. Maladaptive perfectionists exhibited two different types of interpersonal styles; one was hostile and the other was friendly-submissive. The IIP-C profile for the nonperfectionist group indicated interpersonal heterogeneity. These results were consistent with Slaney et al.'s hypothesis that maladaptive perfectionism may affect one's interpersonal behavior in negative ways. For the dyadic groups, the dyadic adaptive perfectionists' IIP-C profile indicated that they also had a friendly-submissive interpersonal style and they did not experience much interpersonal distress. The dyadic maladaptive perfectionists had an IIP-C profile which indicated that they reported problems expressing affection and sympathy and maintaining close relationships. They had higher scores on the Vindictive and Cold subscales compared to the other two groups. The IIP-C profiles for the dyadic nonperfectionists were similar to the dyadic adaptive perfectionists. Overall, the results of this study indicated that maladaptive perfectionism, measured by the APS-R and the DAPS, is associated with experiencing interpersonal difficulties.

Although the studies reviewed so far have utilized primarily White participants, Mobley et al. (2005) study represents an exception to this trend and deserves to be noted. Mobley et al. studied different types of perfectionism in a sample of 251 African-American undergraduate students (173 women and 77 men). Participants completed the APS-R, RSES, BDI, and STAI. First, the factor structure of the APS-R was examined through CFA in this African-American sample. The results of an independent and a multigroup CFA supported the invariant factorial structure of the three-factor APS-R across African-American and Caucasian-American college students. The three groups of perfectionists were replicated through cluster analysis and compared on measures of depression, anxiety, and self-esteem. Adaptive perfectionists (BDI:  $M=4.71$ ,  $SD=5.05$ ; STAI:  $M=35.85$ ,  $SD=10.09$ ) reported significantly lower scores on BDI Depression [ $F(2,206)=15.93$ ,  $p<.001$ ] and STAI Trait Anxiety [ $F(2,206)=18.12$ ,  $p<.001$ ] than the maladaptive perfectionists (BDI:  $M=12.07$ ,  $SD=7.39$ ; STAI:  $M=48.26$ ,  $SD=8.41$ ) and the nonperfectionists (BDI:  $M=10.29$ ,  $SD=7.51$ ; STAI:  $M=44.06$ ,  $SD=11.40$ ). Adaptive perfectionists also reported significantly higher scores on RSES Self-Esteem than the other two groups [ $F(2,206)=30.78$ ,  $p<.001$ ]. There were no significant group differences between maladaptive perfectionists and nonperfectionists on these dependent variables. This study provides support for the cultural validity for the APS-R in African-American college students.

Studies have consistently identified two groups of perfectionists along with a group of nonperfectionists. Overall, maladaptive perfectionists reported lower self esteem and higher levels of psychological distress such as depression, anxiety, and interpersonal problems (Grzegorek et al., 2004; Mobley et al., 2005; Parker, 1997; Rice & Dellwo, 2002; Rice & Slaney, 2002; Slaney et al., 2006). In contrast, adaptive perfectionists reported higher self-esteem, better

GPA, and more secure attachment than the other groups (Grzegorek et al., 2004; Mobley, et al., 2005; Rice & Mirzadeh, 2000; Rice & Slaney, 2002).

### *Summary*

Three major themes have evolved in the perfectionism research of the past several decades. First, the perception of perfectionism shifted from being unidimensional to multidimensional. The dimensional shift was facilitated through the development and widespread use of various multidimensional measures of perfectionism. Second, the perception of perfectionism shifted from being solely negative to having both positive and negative aspects. This balanced perspective emerged as research studies factor analyzed different subscale combinations of various perfectionism measures. Third, the focus of the literature moved from studying positive and negative aspects of perfectionism and their relationships with mental health to comparing participants that were grouped into different types of perfectionists.

These major themes in perfectionism research led me to propose using the APS-R as the measurement to assess perfectionism. First of all, the APS-R addresses the essential nature of perfectionism. It was developed to provide a clear distinction between the positive and negative aspects of perfectionism. In addition, the APS-R has consistently classified participants into adaptive, maladaptive, and non-perfectionists. For these reasons the current study will employ the APS-R to measure the construct of perfectionism.

### Relationships between Perfectionism, Depression, and Self-Esteem

#### *Studies Using Structural Equation Modeling*

More recent studies have used structural equation modeling and path analysis to examine the relationship between perfectionism and other variables. Rice et al. (1998) used structural equation modeling to examine the relationship between perfectionism, self-esteem, and

depression. Participants were 464 undergraduates (122 men and 342 women). The sample was randomly split into two groups for cross-validation purposes. Perfectionism was measured by the FMPS and the APS. Self-Esteem was measured by the RSES and depression was measured by the BDI. Rice et al. hypothesized a model with Adaptive and Maladaptive Perfectionism (using FMPS and APS subscales) as exogenous factors and Self-Esteem and Depression as endogenous factors. Initial results indicated that the path coefficients from Adaptive Perfectionism to both Self-Esteem and Depression were not significant. After eliminating the non-significant paths from Adaptive Perfectionism, a mediating effect of Self-Esteem between Maladaptive Perfectionism and Depression was tested. Results supported a partial mediation effect. The partially mediated model was supported through cross-validation. Further exploratory analyses indicated an interactive relationship between Maladaptive Perfectionism and Self-Esteem on Depression. Participants with low Maladaptive Perfectionism scores had low BDI Depression scores regardless of their RSES Self-Esteem scores. However, participants with low RSES Self-Esteem scores had significantly higher BDI Depression scores than those with high RSES Self-Esteem scores when they had high Maladaptive Perfectionism scores. In other words, people with low self-esteem do not appear to be depressed unless they are high on maladaptive perfectionism. People with high self-esteem are not depressed regardless of their level of maladaptive perfectionism.

Rice et al. (1998) failed to find significant relationships between adaptive perfectionism and the variables of depression and self-esteem. Ashby and Rice (2002) criticized the lack of purity of the perfectionism scales used in Rice et al's study. Therefore, they reinvestigated the relationship of adaptive perfectionism and self-esteem by using the APS-R in their structural equation analyses. As noted by Slaney et al. (2001), the APS-R was developed to measure only

the essential features of perfectionism. In Ashby and Rice's study, participants were 262 undergraduates (82 men, 180 women). The majority of the participants (95%) self-identified as Caucasian-Americans. The APS-R High Standards and Order subscales were used as measures of adaptive perfectionism, while the APS-R Discrepancy subscale and the DAS Self-Criticism subscales were used to measure maladaptive perfectionism. Self-Esteem was measured by the RSES. Each subscale was parceled into two subscales by separating odd and even numbered items. High Standards, Order, Discrepancy, and Self-Criticism were exogenous factors, whereas Self-Esteem was an endogenous factor. Each path from the perfectionism constructs to Self-Esteem was significant with the exception of the path from Order to Self-Esteem. Both Discrepancy ( $\beta = -.31, p < .05$ ) and DAS Self-Criticism ( $\beta = -.43, p < .05$ ) were negative predictors of Self-Esteem. However, most noteworthy in this study is that the APS-R High Standards subscale was a significant positive predictor ( $\beta = .28, p < .05$ ) of Self-Esteem. These results differ, as expected, from the results found by Rice et al. (1998).

Rice and Lopez (2004) examined the mediating and moderating effects and the relationships between perfectionism, adult attachment, self-esteem, and depression. Participants were 211 college students (51 men, 152 women, 8 missing gender information) that were predominantly White (84%). The FMPS was used to measure perfectionism; the RSES to measure self-esteem; the CES-D to measure depression; and the Adult Attachment Questionnaire (AAQ; Simpson, Rholes, & Nelligan, 1992) to measure adult attachment security. Rice and Lopez found that RSES self-esteem buffered the influence of maladaptive perfectionism (FMPS Concern Over Mistake and Doubts About Action) on CES-D depression. AAQ adult attachment security was a moderator in the relationship between maladaptive perfectionism and RSES self-esteem. Among participants that had higher scores on AAQ, maladaptive perfectionism had less

negative effect on RSES self-esteem, whereas for participants with lower AAQ attachment security scores, maladaptive perfectionism was more strongly related to low self-esteem.

Three studies examined maladaptive perfectionism's role as a mediator (Enns, Cox, & Clara, 2002; Wei, Heppner, Russell, & Young, 2006; Wei, Mallinckrodt, Russell, & Abraham, 2004). Wei et al. (2004) examined the relationship between maladaptive perfectionism, attachment, and depression using SEM. The APS-R Discrepancy, FMPS Concern Over Mistakes, and FMPS Doubts About Action subscales were indicators of the maladaptive perfectionism factor. The Avoidance and Anxiety subscales of the Experiences in Close Relationships Scale (ECRS; Brennan, Clark, & Shaver, 1998) were indicators for the attachment avoidance and attachment anxiety factors. The BDI and Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) were used as indicators for the depressive mood factor. Maladaptive perfectionism partially mediated the relation between attachment anxiety and depressive mood and fully mediated the relation between attachment avoidance and depressive mood. Depressive mood was significantly positively associated ( $\beta=.19, p<.01$ ) with attachment anxiety, but the magnitude of the increase in depressive mood for each unit of increase in attachment anxiety was greater as maladaptive perfectionism increased. In another longitudinal study by Wei and her colleagues (2006), maladaptive perfectionism (APS-R Discrepancy) was also found to be a mediator, along with ineffective coping, between the relationship of ECRS attachment and future CES-D depression. Enns et al. (2002) investigated the relationships among parenting experiences, adaptive and maladaptive perfectionism, and depression proneness. Through structural equation modeling, maladaptive perfectionism was found to be a mediator in the relationship between harsh parenting and depression proneness. Depression proneness was significantly and positively predicted by maladaptive perfectionism.

Overall, the literature points out statistically significant relationships between perfectionism, self-esteem, and depression. In summary, maladaptive perfectionism is positively related to depression and negatively related to self-esteem. In addition, self-esteem served as a buffer between the relationship of maladaptive perfectionism and depression. However, the relationship between adaptive perfectionism and self-esteem was not consistent. Rice et al. (1998) failed to find a significant relationship between adaptive perfectionism and self-esteem, but High Standards was a significant and positive predictor of self esteem in Ashby and Rice's (2002) study. An overall limitation of this summary is that perfectionism was measured using different scales in these studies. A majority of these studies used the FMPS, which has been criticized as not having clear measures of the defining aspects of maladaptive perfectionism (Shafran et al., 2002; Slaney et al., 2001).

#### *Correlations between Perfectionism, Depression, and Self-Esteem*

For a closer examination of the relationship between perfectionism, depression, and self-esteem, I reviewed studies that used the APS-R and reported correlation coefficients between High Standards and Discrepancy with self-esteem and depression measures (Grzegorek et al., 2004; Slaney et al., 2001; Wang et al., 2007; Wang, Yuen, & Slaney, in press; Wang, Yeh, & Slaney, 2006). Among studies with U.S. participants, Discrepancy was found to be significantly correlated with BDI depression ( $r=.49$ ) and Self-Criticism Depression ( $r=.57$ ) measured by the DEQ (Grzegorek et al., 2004; Slaney et al., 2001). In studies of Chinese participants from Taiwan and Hong Kong, Discrepancy was significantly correlated with CES-D depression with correlation coefficients ranging from .43 to .49 (Wang et al., 2006, 2007, in press). In contrast, there were no significant correlations between High Standards and Depression in these U.S. and Chinese studies, except for a modest but significant correlation between High Standards and

Dependent Depression ( $r=.14$ ) in Grzegorek et al.'s study. In U.S. studies, Discrepancy and RSES self-esteem were significantly and negatively correlated with correlation coefficients ranging from  $-.35$  to  $-.46$  (Grzegorek et al., 2004; Slaney et al., 2001). Significant and negative correlations between Discrepancy and RSES self-esteem were also found in studies with Chinese participants with self-esteem measured by the RSES ( $r=-.50$ ) and the Individual Competence and Independence subscale ( $r=-.15$ ) of the Chinese Multidimensional Self-Esteem Scale (CMSE; Wong, Yang, & Hsu, 2005). High Standards and RSES self-esteem were significantly but moderately correlated with correlation coefficients ranging from  $.15$  to  $.20$  in U.S. studies (Grzegorek et al., 2004; Slaney et al., 2001). In studies with Chinese participants, a nonsignificant correlation between High Standards and RSES self-esteem ( $r=.10$ ) was found (Wang et al., 2007). However, a significant correlation ( $.46$ ) was found between High Standards and the Individual Competence and Independence subscale of the CMSE, which is an index of self-esteem for an individual perspective (Wang et al., 2006). Overall, the correlation patterns between APS-R subscales and measures of depression and self-esteem seem to be quite similar between studies that used U.S. participants and those that used Asian participants. However, it is worth noting that some of the nonsignificant correlation coefficients ( $.10$ ) were not drastically different from the significant correlation coefficients ( $.15$ ). In the following section, I will review perfectionism studies that compared Asian-Americans and Caucasian-Americans.

#### Cross-Cultural Comparisons

Although most of the studies on perfectionism have utilized Caucasian-American participants, a few studies compared ethnic groups on the different dimensions of perfectionism by using Frost et al.'s (1990) conceptualization and measurement of perfectionism (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002). Results have shown a consistent pattern of

ethnic group differences between Asian-Americans and Caucasian-Americans. Asian-Americans have reported higher scores on most of the FMPS subscales that were labeled as negative aspects of perfectionism, such as Concern over Mistakes, Doubts about Actions, Parental Criticism, and Parental Expectations, when compared with Caucasian-Americans (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002). Yet, there were no significant differences on the Personal Standards subscale between the two ethnic groups. The Personal Standards scale has been viewed as a positive aspect of perfectionism (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002).

Chang (1998) examined cultural differences on perfectionism, suicidal risk, and social problem solving between Asian-American and Caucasian-American college students. Participants were 89 Asian-Americans (38 men and 51 women) and 96 Caucasian-Americans (32 men and 64 women). Information on participants' generation status was not provided. Participants completed the FMPS, the Social Problem-Solving Inventory-Revised (SPSI-R; D'Zurilla, Nezu, & Maydeu-Olivares, 1996), the BHS, and the Suicidal Probability Scale (SPS; Cull & Gill, 1982). Asian-Americans reported significantly higher scores on four of the six FMPS subscales: Concern Over Mistakes, Doubts About Actions, Parental Criticism, and Parental Expectations. No significant group differences were found for Personal Standards and Organization. Compared to Caucasian-Americans, Asian-Americans also reported significantly higher scores on Hopelessness and Suicide Potential. There was also a different pattern in the relationships between the FMPS subscales scores and the Hopelessness and Suicidal Potential scores between Asian-Americans and Caucasian Americans. Hopelessness was significantly correlated with Concern Over Mistakes ( $r=.59, p<.000006$ ), Parental Criticism ( $r=.51, p<.000006$ ), and Doubts About Actions ( $r=.49, p<.000006$ ) for Caucasian-Americans, whereas

Hopelessness was not significantly correlated with any of these FMPS subscales for Asian-Americans at the .0003 level after Bonferroni adjustments. A similar pattern of group differences was found between the relationships of Suicidal Potential and FMPS subscale scores. For Caucasian-Americans, Suicidal Potential was significantly correlated with Concern Over Mistakes ( $r=.41, p<.00006$ ), and Doubts About Actions ( $r=.53, p<.000006$ ), but neither of these correlations was significant for Asian-Americans. It seems interesting that the associations between the negative FMPS scales and Suicide Potential and Hopelessness were not statistically significant for Asian-Americans, whereas they were for Caucasian-Americans. Although Asian-Americans reported higher scores on the negative FMPS scales, Suicidal Potential, and Hopelessness, these were not significantly related to each other.

Kawamura and her colleagues (2002) examined the relationship between perfectionism and perceived parenting style among 145 Asian-American and 192 Caucasian-American college students. Participants' generational statuses were not reported. Participants completed three of the FMPS subscales, Concern Over Mistakes, Doubts About Actions, and Personal Standards, as well as the Parental Harshness Scale (PHS; Frost et al., 1990) and the Parental Authority Questionnaire (PAQ; Buri, 1991). Compared to Caucasians, Asian-Americans rated both of their parents as more harsh and authoritarian. Consistent with Chang's (1998) findings, Asian-Americans reported significantly higher scores on FMPS negative subscales, Concern Over Mistakes [ $t(306)=4.34, p<.05$ ] and Doubts About Actions [ $t(323)=4.41, p<.05$ ], but not on Personal Standards [ $t(296)=0.75, p=.39$ ]. However, ethnicity was not a significant predictor of Concern Over Mistakes and Doubts About Actions after parental traits were controlled for in two separate hierarchical regression analyses. Relationships between perfectionism and parental characteristics were also examined across participants' gender. For Caucasian-Americans, there

were no significant gender differences in the relationships between the subscale scores that measured perfectionism and parental traits. For Asian-Americans, there were significant gender differences in correlations between Paternal Harshness and Concern Over Mistakes [ $t(139)=-2.49, p<.05$ ] and correlations between Paternal Authoritarianism and Doubt About Actions [ $t(138)=-2.00, p<.05$ ]. The correlation between Paternal Harshness and Concern Over Mistakes was statistically significant for Asian-American women ( $r=.305, p<.005$ ) but not for Asian-American men ( $r=-.105, p=.439$ ). Similarly, the correlation between Paternal Authoritarianism and Doubt About Actions was significant for Asian-American women ( $r=.481, p<.001$ ), but not for Asian-American men ( $r=.134, p=.334$ ). The results of this study suggest the possibility that Concern Over Mistakes and Doubts About Actions are related to perceptions of Parental Authoritarianism and Parental Harshness for Asian-American women but not for Asian-American men. Therefore, these results raise two interesting questions. First, the possibility of whether Concerns Over Mistakes and Doubts About Actions are results of needs to meet parental expectations, which are more prevalent among Asian cultures. Second, why are the correlations between perceived parental factors more strongly related to Concern Over Mistakes and Doubts About Actions for Asian-American women than men?

Castro and Rice (2003) compared Asian Americans, Caucasians, and African Americans using the FMPS. They used existing datasets collected from 1994 to 2000 and selected 59 Asian American and 65 African American participant responses. They also randomly chose a sample of 65 Caucasian student responses from these datasets. A total of 189 students (41 men, 146 women, and 2 missing gender data) from two public universities formed the sample of this study. Asian American students reported significantly higher scores on Concern Over Mistakes, Parental Expectations, Parental Criticism, and Doubts About Actions than Caucasian students.

However, there were no significant differences between these two groups on subscale scores for Personal Standards, and Organization. Groups were also compared on CES-D Depression and Grade Point Average; no significant differences emerged between Asian Americans and Caucasians. The correlations between scores of the FMPS subscales and CES-D depression were similar for the two groups. There were positive significant relationships between scores of Depression and Concern Over Mistakes, Parental Criticism, and Doubts About Actions. Doubts About Actions scores were also significantly and negatively correlated with GPA for Asian Americans, but not for Caucasians.

Castro and Rice (2003) conducted multiple regressions for each ethnic group. For Asian Americans, the FMPS subscales accounted for significant variation on the Depression scores ( $R^2 = .51$ ). For Caucasian students, the FMPS subscale scores also accounted for significant variation on the Depression scores ( $R^2 = .29$ ). For both groups, the Doubts About Actions subscale score was the only significant predictor for Depression after partialling out the effects of other FMPS subscale scores. In contrast to Chang's (1998) study, the relationships between FMPS subscales and depression were similar across Asian-Americans and Caucasian-Americans. This suggests that the negative aspects of perfectionism affect the mental health of Asian-Americans as well as Caucasian-Americans. However, a major limitation of the study is the method used for sampling participants. Castro and Rice combined samples over a 6 year span to assemble the ethnic minority samples. This limits interpretability because of confounding factors such as history and time.

For these three cross-ethnic studies using the FMPS (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002), the results consistently indicate that Asian-Americans reported higher scores on the FMPS subscales that were categorized as negative. Asian-Americans seemed to

perceive higher levels of expectations and criticism from their parents compared to Caucasian-Americans. The higher levels of Concern Over Mistakes and Doubts About Actions could be attributed to perceived parenting styles. There were no group differences on Concern Over Mistakes and Doubts About Actions after controlling for parental variables such as Parental Harshness and Parental Authoritarianism (Kawamura et al., 2002). It appears that having higher Concern Over Mistakes and Doubts About Actions may be related to the collectivistic Asian culture that emphasizes giving greater precedence to family and parental expectations over personal needs. Moreover, an interesting question is whether there are differences between Asian-Americans and Caucasian-Americans on the relationships between these FMPS negative dimensions and psychological maladjustments. More specifically, do constructs underlying parental expectations and criticism, concern over mistakes, and doubts about actions have less negative effects on Asian-Americans than Caucasian-Americans? Moreover, the gender difference for Asian-Americans on the strength of the relationship between parental traits and perfectionism found in Kawamura's study needs to be examined further. Although results of these cross-cultural studies reveal possible cultural differences, my main critique of these studies is that they used subscales that measured peripheral negative perfectionism traits rather than essential features of perfectionism. For example, the construct of discrepancy defines the negative aspect of perfectionism (Slaney, et al., 2001). However, no cross-ethnic study was located that compared ethnic groups on negative perfectionism using the Discrepancy subscale of the APS-R. However, there have been cross-ethnic studies (Hardin & Leong, 2005) that examined Higgins's (1987) conceptual theory of self-discrepancy.

Based on Higgins's theory, Hardin and Leong (2005) examined the role of self-discrepancy in predicting anxiety and depression among Asian and Caucasian-Americans.

Participants were 140 Asian and Asian-American college students and 189 Caucasian-American college students. Discrepancy was measured from three domains: ideal (attributes that a person is striving for), ought (attributes a person feels obligated to have), and undesired (attributes that a person does not want to have). Depression and social anxiety were measured by the CES-D and the Social Avoidance and Distress Scale (SAD; Watson & Friend, 1969), respectively.

Pessimism and optimism were measured by the Extended Life Orientation Test (ELOT; Chang, Maydeu-Olivares, & D’Zurilla, 1997). Between group comparisons on the discrepancy domains indicated that Asian-Americans had significantly higher discrepancy scores than Caucasian-Americans on all three domains, ideal, ought, and undesired,  $F_s(1,324)=8.47, 31.88, 18.97$ ,  $p_s<.01$ , respectively. There were also group differences in the correlation patterns between

scores of the discrepancy domains and CES-D depression. Intercorrelations between variables revealed that for Caucasian-Americans, Ideal ( $r=.18, p<.05$ ) and Undesired ( $r=.26, p<.05$ )

Discrepancy were both significantly and positively related to Depression, but the relationship between Ought Discrepancy ( $r=.11$ ) and Depression was not significant. For Asian-Americans, Ought ( $r=.17, p<.05$ ) and Undesired ( $r=.30, p<.05$ ) Discrepancy were significantly related to Depression, while the relationship between Ideal Discrepancy ( $r=.14$ ) and Depression was not significant. This group difference, in correlation patterns, although not drastically different and

in need of replication, seems interesting. I view Ought Discrepancy as more related to obligations that need to be fulfilled, which may include parental or family expectations. Ideal Discrepancy seems more related to personal goals and expectations with a more individualistic nature. Therefore, the stronger relationship between Ought Discrepancy and Depression is consistent with the Asian collectivistic values, while the stronger relationship between Ideal Discrepancy and Depression fits with individualistic or Western values. However, it is worth

noting that some of the significant (.17 – .26) and nonsignificant (.11 – .14) correlations were not drastically different; nor did they account for much variance.

An SEM model was used to examine the relationship between the three domains of discrepancy, optimism, pessimism, social anxiety, and depression (Hardin & Leong, 2005). The three discrepancy domains were exogenous factors; social anxiety and depression were endogenous factors; and optimism and pessimism were mediating factors. Results suggested that Undesired Discrepancy predicted depression equally well for Asian-Americans and Caucasian-Americans. However, Undesired Discrepancy was a stronger predictor of social anxiety for Asian-Americans ( $\beta=.24, p<.05$ ) than for Caucasian-Americans (*ns*). Ought Discrepancy was found to not have a direct relationship with the distress factors. Ideal Discrepancy predicted lower levels of optimism and Undesired Discrepancy predicted higher levels of pessimism in both groups. Ideal Discrepancy was a stronger predictor of optimism for Asian-Americans ( $\beta=-.53, p<.05$ ) than for Caucasian-Americans ( $\beta=-.44, p<.05$ ), though not drastically different. Ideal Discrepancy was a stronger predictor of pessimism for Caucasian-Americans ( $\beta=.42, p<.01$ ) than for Asian-Americans ( $\beta=.18, ns$ ). Interestingly, Asian-Americans scored higher on the three discrepancy domains and pessimism scale than Caucasian-Americans, however, they were no less optimistic and showed no more depressive symptoms than Caucasian-Americans. This finding indicates that discrepancy, measured by domain scales based on Higgins's theory, may not negatively affect psychological well-being in Asian-Americans when compared with Caucasian-Americans.

Cross cultural comparison studies on perfectionism (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002) and discrepancy (Hardin & Leong, 2005) have shown interesting cultural differences. Although these inferences are based on correlation studies with various measures

and more empirical data are needed, the results of these cross-ethnic studies seem consistent with the centrality of the family and parenting in the Asian culture. The Asian family is typically perceived as more important than the individual (Ho & Chiu, 1994; Yang, 1997). According to the Confucian philosophy, “filial piety” is the prime guiding principle of socialization practices (Shek & Chan, 1999). There is a traditional saying that “among hundreds of behaviors, filial piety is the most important one” (*bai xing xiao wei xian*). In the following section, I will review the perfectionism studies with East Asian participants with an emphasis on family factors.

#### Perfectionism studies with East Asian populations

In this section, I will review a series of perfectionism studies conducted with East Asian participants. First, I will review two studies that utilized less frequently used perfectionism measures such as the Burns Perfectionism Scale (1980) and the Perfectionism subscale of the Eating Disorder Inventory (EDI; Garner, Olmsted, & Garfinkel, 1983). Next, I will review three studies on Chinese participants using a Chinese translation of the FMPS. Finally, I will present a series of studies with Chinese students from Hong Kong and Taiwan that used the APS-R.

Sumi and Kanda (2002) studied the relationship between neurotic perfectionism, depression, anxiety, and psychosomatic symptoms in a sample of 138 Japanese male undergraduate students. They used the Burns Perfectionism Scale (1980) to measure neurotic perfectionism. Hierarchical regression results indicated that neurotic perfectionism was a significant predictor for both depression and psychosomatic symptoms. Davis and Katzman (1999) examined the relationship between acculturation and perfectionism among 197 Hong Kong international students in U.S. universities (104 men, 93 women). They used the Perfectionism subscale of the EDI to measure perfectionism. Higher acculturation, measured by the Suinn-Lew Acculturation Scale (SL-ASIA; Suinn, Richard-Figueroa, Lew, & Vigil, 1987),

was associated with higher levels of perfectionism. Both men and women in high acculturation groups reported higher perfectionism scores than those in low acculturation groups.

Three studies were located that studied perfectionism with Chinese participants using the same Chinese translation of the FMPS to measure perfectionism (Cheng, 2001; Cheng et al., 1999; Zi, 2003). Cheng et al. (1999) recruited 947 adolescents, 13 to 18 years old, from Hong Kong and examined the factor structure of the Chinese FMPS. Five of the six original FMPS factors emerged; the Parental Criticism factor was not found. Two of the four Parental Criticism subscale items had loadings over .45 and loaded onto the Doubts About Actions factor. The other two items had factor loadings less than .35 and loaded onto the Parental Expectations factor and the Doubts About Actions factor. Cheng et al.'s results raised questions about the relevance of the Parental Criticism subscale for Chinese participants. The results suggested that Parental Criticism may have a moderate relationship with Doubts About Actions for this Hong Kong sample because two of the four Parental Criticism items loaded onto the Doubts About Actions factor. Cheng and his colleagues suggested that Hong Kong parents may be less critical of their children or the occasional parental criticism may be experienced as parents expressing care. In addition, Cheng et al. found that Concern Over Mistakes and Doubts About Actions scores were most strongly related to DASS Depression (CM:  $r=.46, p<.01$ , DA:  $r=.34, p<.01$ ) and DASS Anxiety (CM:  $r=.36, p<.01$ , DA:  $r=.31, p<.01$ ) and served as negative predictors of RSES self-esteem (CM:  $r=-.29, p<.01$ , DA:  $r=-.25, p<.01$ ). Interestingly, Organization scores were found to be a negative predictor for DASS Depression ( $r=-.10, p<.01$ ) and DASS Anxiety scores ( $r=-.07, p<.05$ ), although the correlation coefficients were not high, in this Chinese sample.

Cheng (2001) examined the relationship between perfectionism, life stress, problem solving, and depressive symptoms among 138 university students (62 men and 76 women) from

Hong Kong. Perfectionism was measured using the composite scores of the Concern Over Mistakes and Doubts About Actions subscales of the FMPS; life stress by the Life Experience Survey (LES; Sarason, Johnson, & Siegal, 1978); problem solving by the Problem Solving Inventory (PSI; Heppner & Peterson, 1982); depressive symptoms by the BDI and BHS. Hierarchical multiple regression was conducted with BDI depression as the dependent variable and life stress entered as the first step, perfectionism and problem solving entered as the second step, and two way interactions between life stress with perfectionism and problem solving entered as the last step. Results indicated that the interaction of perfectionism and life stress was a significant predictor for depression. Perfectionism was found to be a moderator between life stress and depressive symptoms; it made participants more vulnerable to depressive symptoms in the presence of life stress.

Zi (2003) studied Chinese graduate students from China and the U.S. by using cluster analysis with the FMPS and found four clusters of perfectionists. Past studies using U.S. participants with the FMPS found three clusters: healthy and dysfunctional perfectionists and non-perfectionists (Parker, 1997; Rice & Mirzadeh, 2000). Studies that used the APS-R also found three similar clusters of adaptive and maladaptive perfectionists and non-perfectionists (Grzegorek et al., 2004; Mobley et al., 2005; Rice & Slaney, 2002). Zi's first three groups mirrored the groups found in U.S. samples. The group of dysfunctional perfectionists had the highest scores on Personal Standards, Concern Over Mistakes, Doubts About Actions, Parental Expectations, and Parental Criticism. The healthy perfectionists had the highest Organization scores and the second highest Personal Standards scores. The non-perfectionists reported the lowest Personal Standard and Organization scores. Zi labeled his fourth group as sub-healthy perfectionists. The sub-healthy perfectionists rated Parental Expectations and Parental Criticism

as high as did the dysfunctional (maladaptive) perfectionists. However, the sub-healthy perfectionists' scores on Personal Standards and Organization were almost as low as the scores for non-perfectionists.

These groups of perfectionists were compared on their Satisfaction With Life scores (Zi, 2003). Non-perfectionists reported the highest satisfaction with life scores, which were significantly higher than the dysfunctional perfectionists and sub-healthy perfectionists. Healthy perfectionists reported the second highest scores on satisfaction with life and their scores were significantly higher than the dysfunctional perfectionists, who were least satisfied with life. Univariate ANOVAs also revealed group differences on the Neuroticism subscale of the NEO Five Factor Inventory (NEO-FFI; Yang, 1996). Dysfunctional perfectionists reported the highest Neuroticism scores, which were significantly higher than the other three groups. The sub-healthy perfectionists' Neuroticism scores were significantly higher than the healthy perfectionists and non-perfectionists.

Although Zi's (2003) study raises the interesting possibility of a fourth group of Chinese perfectionists with high Parental Criticism and Parental Expectations and low Personal Standards and Organization scores, the Cheng et al. (1999) results raise questions about the relevance of the Parental Criticism scale for Chinese participants. Cheng and his colleagues suggested that Hong Kong parents may be less critical of their children. This contention seems at odds with Zi's results and the widely held perception that Chinese parents use shaming or the threat of loss of face as a principle technique for controlling children's behaviors (Yeh & Hwang, 1999). Devotion to parents is highly valued and roles inside the family extend to relationships outside the family (Yang, 1997). The behavior of a Chinese child reflects on the reputation and honor of the entire family. Parents emphasize their children's obligations toward the family and failure to

meet these obligations may result in a loss of face (*tiu lien*). By provoking shame feelings, parents, intentionally or unintentionally, socialize their children to adopt culturally desirable values (Fung, Lieber, & Leung, 2003). This shaming process focuses on discrepancies that exist between the behaviors the parents expect of the child and the child's actual behaviors.

This focus on the discrepancy between the expected and actual behaviors that occurs in shaming is similar to the concept of discrepancy that is seen as the defining negative aspect of perfectionism in the APS-R. Three studies have examined perfectionism in the Chinese population using Chinese translations of the APS-R (Wang, et al., 2006, 2007, in press).

Wang et al. (in press) studied perfectionists in a sample of 509 high school students from Hong Kong (61% males and 39% females). A Chinese translation of the modified APS-R was used to cluster participants into groups of perfectionists. The APS-R was modified by dropping an Order item and 2 Discrepancy items based on results of a principle-axis factor analysis. Cluster analysis of the three APS-R subscales yielded the three groups of perfectionists that were found in past studies with U.S. participants (Grzegorek et al., 2004; Rice & Slaney, 2002). Comparison between the perfectionist groups generally replicated past studies in which adaptive perfectionists appeared to be psychologically healthier than both the maladaptive perfectionists and nonperfectionists. Indicators of psychological well-being and distress were satisfaction with life, depression, and loneliness, which were measured by the Satisfaction With Life Scale (SWLS; Pavot & Diener, 1993), the CES-D, and the UCLA Loneliness Scale-Version 3 (Russell & Cutrona, 1988), respectively. Adaptive perfectionists reported higher scores on Satisfaction With Life and lower scores on Depression and Loneliness than the two other groups. Interestingly, there were no significant differences between maladaptive perfectionists and nonperfectionists on these dependent variables. In past studies with U.S. participants,

maladaptive perfectionists had higher scores on depression and other negative psychological indicators than nonperfectionists (Grzegorek et al., 2004; Rice & Slaney, 2002). However, there were no significant differences between maladaptive perfectionists and nonperfectionists on depression, loneliness, and satisfaction with life in this sample of Hong Kong participants.

Wang et al. (2007) examined groups of perfectionists with 273 Chinese college students (159 men, 111 women, 3 without gender data). Cluster analysis with the APS-R High Standards and Discrepancy subscales yielded four groups. In addition to the three groups (i.e., adaptive, maladaptive, and non-perfectionists) found with the U.S. samples, a fourth group with low-High Standards scores and higher-Discrepancy scores emerged. These four groups were compared on depression, anxiety, achievement motivation, and self-esteem, measured by the CES-D, STAI, Social-Oriented and Individual-Oriented Achievement Motivation Scale (SOAM, IOAM; Yu & Yang, 1987), and the RSES, respectively. The adaptive perfectionists reported significantly higher mean scores on self-esteem than the other three groups. The maladaptive perfectionists reported significantly higher mean scores on Trait Anxiety and depression when compared with the other three cluster groups. The adaptive perfectionists reported significantly lower mean scores on State Anxiety than the other three groups. The two groups of perfectionists reported significantly higher mean scores on the Individual Oriented Achievement Motivation scale than the nonperfectionists and the low-High Standards/higher-Discrepancy group. However, the latter group along with the adaptive and maladaptive perfectionists reported significantly higher scores on the Social Oriented Achievement Motivation scale than the nonperfectionists.

This fourth group in Wang et al.'s (2007) study is particularly interesting. First, it is large; about a third of the participants were in this group. Second, although the participants' scores on the High Standards scale suggested that they do not set high standards for themselves, their

scores on the Discrepancy scale were elevated. This fourth group looked similar to Zi's (2003) "sub-healthy perfectionists" who had low scores on the Personal Standards subscale but mid to high scores on the other perfectionism subscales. Paradoxically, participants in this fourth group indicated they were not meeting high standards that they did not have. Wang et al. proposed the possibility that this fourth group's Discrepancy scores were the result of not meeting expectations set by others based on an examination of their Individual-Oriented and Social-Oriented Achievement Motivation scores. This group's Individual-Oriented Achievement Motivation scores were similar to the scores for the nonperfectionist group and significantly lower than the scores of the two perfectionist groups. However, the fourth group's Social-Oriented Achievement Motivation scores were not different from scores of the two groups of perfectionists, but were significantly higher than the nonperfectionists' scores. This pattern of scores seems consistent with the possibility that this group's Discrepancy scores may be the result of not meeting the expectations of others. The fourth group's high Social-Oriented Achievement Motivation scores suggest that they were more concerned about meeting external expectations set by parents or others than meeting their own. Therefore, the high Discrepancy scores may reflect discrepancies between their actual performance and the standards and expectations of others.

This fourth group's scores on State Anxiety were similar to the maladaptive perfectionists' scores. Their Trait Anxiety and depression scores were significantly lower than the maladaptive perfectionists' scores but higher than the adaptive perfectionists'. The fourth group's self-esteem scores were significantly lower than the adaptive perfectionists' and between the nonperfectionists and maladaptive perfectionists'. Overall, the fourth group's scores on various psychological indicators were similar to the scores of the nonperfectionist group, which

were generally between the scores of adaptive and maladaptive perfectionists. A critique for this study is that the APS-R Order subscale was not included in the cluster analysis. However, a few past U.S. studies used the High Standards and Discrepancy subscales scores to cluster analyze participants (Gilman & Ashby, 2003; Gilman, Ashby, Sverko, Florell, & Varjas, 2005) and yielded the same three cluster groups as other studies that included all three APS-R subscales (Grzegorek et al., 2004; Rice & Slaney, 2002; Slaney et al., 2006).

### *Summary*

An interesting difference between Chinese and U.S. samples appeared in the correlations between APS-R subscales. The High Standards and Discrepancy subscale scores had statistically significant correlations of .29 and .37 in Chinese samples (Wang et al., 2007, in press), while the two subscale scores were not significantly correlated in U.S. samples (Grzegorek et al., 2004; Slaney et al., 2001). This suggests that for Chinese students, Discrepancy scores are more highly related to High Standards scores compared with U.S. samples.

There was also an interesting difference in comparison of mean scores between Chinese and U.S. samples. A comparison of APS-R subscale scores between Chinese students from Hong Kong (Wang et al., in press) and Taiwan (Wang et al., 2007) and a sample of 273 U. S. students (Grzegorek et al., 2004) revealed that the overall mean for Discrepancy scores (H.K.=4.43; Taiwan=4.48; U.S.=3.51) was higher for the Chinese students while the High Standards (H.K.=4.77; Taiwan=5.06; U.S.=5.62) and Order scores (H.K.=4.60; Taiwan=4.74; U.S.=4.96) were lower. Consistent with results of other cross-cultural studies (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002), Chinese and Asian-American participants reported higher scores on the negative perfectionism subscales.

The results of the small number of perfectionism studies with East Asian participants suggest several interesting inferences. First, parental criticism may be perceived by East Asian students differently than Caucasian-Americans (Cheng et al., 1999). Second, East Asian students reported higher APS-R Discrepancy scores than Caucasian-American students (Wang et al., 2007, in press). Third, there is also a higher correlation between High Standards and Discrepancy among East Asian students when compared to Caucasian-Americans (Wang, et al., 2007, in press). Discrepancy may not be perceived as negatively by East Asians compared to Caucasian-Americans (Cheng et al., 1999; Wang, et al., 2007, in press). Therefore, further exploration of how family factors and collectivistic cultural values may relate to perfectionism by directly comparing Asian-Americans and Caucasian-Americans seems logical.

#### Family Factors and Collectivistic Cultural Values

The differences found in studies comparing East Asians and U.S. participants raise interesting questions. Family seems to be an important factor in determining how Asians set their standards and evaluate themselves. In Wang et al.'s (2007) study, the group of participants with low High Standards but high Discrepancy indicated that they were not meeting high standards that they did not have, based on their scores on the APS-R High Standards and Discrepancy subscales. In order to explain the source of their discrepancy, Wang et al. proposed the possibility that this fourth group's Discrepancy scores were the result of not meeting expectations set by their families. Generally, Asian cultures are more collectivistic in nature, and therefore, Asian-Americans often place more importance on relationships and familial commitments than those from Western cultures (e.g., Triandis, 1995; Yang, 1997). Asians are also more influenced by external forces, such as social context and relationships rather than internal forces (Yeh & Huang, 1996). Because the family or other in-group members set the

standards and evaluate the outcome, Yu and Yang (1994) noted that in a collectivistic culture, external expectations are important. Since people in Asian cultures perceive themselves in terms of roles, social relationships, and social identities, they are likely to evaluate their performances based on certain identities or roles such as student, son or daughter, or friend (Cheung, 1997). Thus, evaluating one's self on context-free characteristics is relatively unlikely. In order to explore the underlying sources of Discrepancy among Asian-Americans, I will review studies that examined or compared Asian or Asian-Americans with Caucasian-Americans on family expectations, perceived discrepancy between one's performance and their family's standards, and how these factors relate to psychological distress. I will also integrate collectivistic cultural aspects in this section.

The results of a number of studies that compared Asians or Asian-Americans with Caucasian-Americans on parental expectations found that family expectations were more important for Asian-Americans than they were for Caucasian-Americans. Chung et al. (1997) compared Chinese and European students in New Zealand on their academic achievement and aspirations. Participants were 108 Chinese and 203 European high school students with a mean age of 15.4 years. They were asked to rate their academic expectations, aspirations, and grade satisfaction, as well as their estimates of their parents' ratings of these dimensions. There was a significant difference between the Chinese and European students on their and their estimated parents' educational expectations. A significantly higher percentage of Chinese students (69%) expressed intentions of going to a university, compared to a tertiary institution, than did the European students (47%) ( $\chi^2 = 14.63$ ,  $df = 1$ ,  $p < .0001$ ). This result was similar to their perceptions of their parents' expectations (Chinese parents 78%, European parents 38%;  $\chi^2 = 25.72$ ,  $df = 1$ ,  $p < .0001$ ). Chung et al., also found that there was a significant group difference on

how the estimated parents' expectations and their children's expectations differed. Chinese parents were estimated to have higher expectations for their children's grades than their children on four out of the five subjects. No significant differences were found in comparing European parents and children. Satisfactions with grades were also examined. Although the two groups obtained similar grades, a higher percent of Chinese students (44%) reported being dissatisfied with their grades than European students (26%) ( $\chi^2=9.24$ ,  $df=1$ ,  $p<.0001$ ). Moreover, a higher percentage of Chinese parents were seen as dissatisfied with their children's grades than were their European counterparts (Chinese parents 68%, European parents 46%;  $\chi^2=11.55$ ,  $df=1$ ,  $p<.0001$ ). Interestingly, not only were Chinese participants more influenced by the perceived expectations of their parents, these Chinese participants also perceived their parents as being less satisfied with their academic performances compared to their European counterparts.

It is important to examine how parental expectations affect one's psychological well-being. However, Wang and Heppner (2002) suggested that it is even more essential to understand how children's perceptions of how they are living up to their parents' expectations affect their psychological well-being. Wang and Heppner (2002) studied the relationship between parental expectations and psychological distress among Taiwanese college students. They developed a Living up to Parental Expectancy Inventory (LPEI), which included three subscales: Perceived Parental Expectation (PPE), Perceived Self-Performance (PSE), and Living up to Parental Expectation (LPE). Each LPEI subscale also included three domains: Personal Maturity, Academic Achievement, and Dating Concerns. The participants were 99 college students from Taiwan (56 men and 43 women) who completed the LPEI along with Chinese translations of the State-Trait Anxiety Inventory (STAI-C; Spielberger, 1983; Chien trans. 1989), the State-Trait Anger Expression Inventory (STAX-C; Spielberger, 1986; Chien trans. 1989) the

BDI (BDI-C; Beck, 1967; Huang trans. 1983), and the Marlowe-Crowne Social Desirability scale (MCSDS-C; Crowne & Marlowe, 1960; Huang & Young trans. 1972). The construct validity of the LPEI was first examined by correlating the LPEI subscales with indices of psychological distress measured by the STAI-C, STAX-C, and the BDI-C.

Wang and Heppner (2002) found the LPE subscale scores to be a stronger predictor of psychological distress than the PPE and PSE scores. In addition, all three of the LPE domains were significantly correlated with at least one psychological distress index. More specifically, scores on the Personal Maturity domain were significantly correlated with the STAI-C (trait), STAX-C, and BDI-C scores ( $r=-.44$ ,  $-.33$ ,  $-.46$ , respectively) at the .001 level. Scores of the Academic Achievement domain were significantly correlated with the STAI-C ( $r=-.33$ ) and BDI-C ( $r=-.40$ ) scores, while the Dating Concerns domain only correlated significantly with BDI-C ( $r=-.38$ ). As for PPE, none of the three domains had significant correlations with any of the distress measures. For PSP, scores of the Personal Maturity domain significantly correlated with the STAI-C ( $r=-.32$ ) and BDI-C ( $r=-.38$ ) scores at the .001 level. Even after social desirability was partialled out, there were still significant correlations between LPE domains and psychological distress indicators. Results indicated that perceived degree of living up to parental expectations was a stronger predictor of psychological distress than perceived parental expectations or perceived self-performance. In fact, perceived parental expectations did not seem to have much predictive utility for psychological distress. Interestingly, this concept of living up to parental expectations seems to be similar to one's perception of parental or family discrepancy between the children's performance and the parents' expectations. This raises the possibility that for perfectionism, a perceived family discrepancy may be more relevant to Asians and Asian-Americans than a personal perspective of discrepancy.

Other studies have also found a higher level of parental discrepancy among Asian-Americans than Caucasian-Americans. Asian-Americans reported lower scores on a scale measuring the degree to which they had fulfilled their parents' expectations than Caucasian-Americans (Oishi & Sullivan, 2005). Oishi and Sullivan also found that perceived fulfillment of parental expectations was a mediator of the cultural differences between Asian-Americans and Caucasian-Americans on RSES self-esteem and SWLS satisfaction with life scores. In other words, Asian-Americans reported lower RSES self-esteem and SWLS satisfaction with life scores could possibly be related to being less likely to think they had fulfilled their parents' expectations. Aldwin and Greenberger (1987) compared Korean-American college students with Caucasian-American college students. On average, the Korean American participants came to the U.S. when they were about 13 years old (the range was from 2 to 20). They found that Korean-American students reported more pressure from their parents to achieve academically than their Caucasian-American counterparts. Korean-American students also perceived a slightly but significantly higher discrepancy between their parents' and their own view of a GPA that symbolized "doing well" in college. Korean-Americans perceived their parents setting a higher GPA standard than their own, and it was the opposite for Caucasian-Americans. Crystal et al. (1994) compared high school students in Taiwan, Japan, and the U.S on perceived parental views of their academic achievements. They found that Asian students reported higher levels of parental expectations and lower levels of parental satisfaction concerning their academic achievements than did their American counterparts.

A summary of these studies indicates that Asians or Asian-Americans have higher perceived parental expectations compared to Caucasian-Americans (Chung et al., 1997; Crystal et al., 1994). Asians and Asian-Americans also tend to be more strongly affected by parental

expectations (Chung et al., 1997). Moreover, cross-cultural studies indicate that Asian and Asian-American parents are more dissatisfied with their children's performances, which is associated with their children's psychological distress (Aldwin & Greenberger, 1987; Chung et al., 1997; Crystal et al., 1994; Oishi & Sullivan, 2005). Parental dissatisfaction seems similar to the concept of perfectionistic discrepancy; it seems related to what the APS-R Discrepancy measures but from a parental or family perspective. The next question is whether the higher family-discrepancy or self-discrepancy, from a perfectionistic standpoint, is an indicator that this population experiences a higher level of psychological distress or whether it can be explained by cultural differences in values and beliefs.

Several studies have found Asians or Asian-Americans to possess higher levels of discrepancy between standards/expectations and actual performance, indicating that they have not met standards or expectations, when compared to Caucasian-Americans (Cheung, 1997; Hardin & Leong, 2005; Wang, et al., 2007, in press). Similarly, Asians or Asian-Americans tend to focus on self-criticism, while Caucasian-Americans focus more on self-enhancement (Heine et al., 2001; Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). Kitayama et al. conducted two studies to examine this cultural difference. They compared Japanese college students with Caucasian-American college students. Results showed that there was a strong self-enhancing effect for American students; given a list of 400 situations describing successes and failures, they chose a greater number of success situations than failure situations as relevant to their self-esteem. American students also reported that success situations increased their self-esteem more than the degree that failure situations decreased their self-esteems. In contrast, Japanese students showed less self-enhancing tendencies than American students by not viewing success situations as relevant to their self-esteem. These Japanese students rated higher levels of decrease in self-

esteem from failure situations than vice versa from success situations. They demonstrated significantly stronger self-criticism tendencies than American students by choosing a greater number of failure situations than success situations as being relevant to their self-esteem. Heine et al. (2001) examined the focus on self-criticism by comparing samples of Japanese college students with North American college students from Canada and the U.S. using an experimental design. Japanese and North American students were compared on how long they persisted working on follow-up tasks after they had received either success or failure feedback for previous performance. Results indicated that Japanese participants spent significantly more time on a task following failure feedback ( $M=585.5s$ ,  $SD=258.3$ ) than one following success feedback ( $M=364.9s$ ,  $SD=282.5$ ),  $F(1,80)=10.28$ ,  $p<.002$ . In contrast, North American participants persisted marginally longer on a task following success feedback ( $M=510.2s$ ,  $SD=300.4$ ) than one following failure feedback ( $M=375.4s$ ,  $SD=269.2$ ),  $F(1,60)=2.78$ ,  $p=.10$ . In other words, Japanese were more motivated to work on tasks that they had failed than those they succeeded on, and vice versa for Americans. Heine et al. also found that Japanese viewed their abilities to be less fixed than Americans. Results implied that Japanese students' sensitivity to areas of weakness served as a motivation to improve. These findings emphasized the cultural differences in how Japanese and Caucasian-Americans tended to have different foci on success and failure situations. This tendency to focus on self-criticism and self-improvement could be a possible explanation for Asians or Asian-Americans reporting higher levels of discrepancy between performance and standards, expectations, or ideals. In other words, Asians and Asian-Americans may have a stronger awareness of the discrepancy between the standards or expectations that they are not meeting. Could this higher level of discrepancy among Asians and Asian-Americans be a cultural difference rather than a negative construct associated with psychological distress?

Kitayama and his colleagues (1997) proposed that this tendency toward self-criticism among Asians is related to their collectivistic and interdependent cultural values. They argued that in a collectivistic culture, maintaining, affirming, and being part of significant social relationships is essential. The sensitivity to negative self-relevant information helps identify where one has fallen short or failed to meet the expectations or standards of their social unit. Heine et al. (2001) explained self-criticism as a motivation for self-improvement. Ho (1989) also noted that highly developed feelings of obligation and concepts of shame and shaming are used to reinforce expectations and proper behaviors within and outside of Asian families. Therefore, this stronger tendency towards self-criticism raises the question of whether having high discrepancy is possibly less negative or even somewhat positive for Asians and Asian-Americans. As mentioned earlier, the concept of shaming is strongly associated with a focus of the discrepancy between expectations and how one measures up in his or her actual performance.

In summary, collectivistic cultural values appear to have a significant influence on Asians and Asian-Americans. The higher level of discrepancy found in Asian-Americans could be related to cultural aspects, such as a need to meet role expectations from one's family or a strategy for self-improvement. This may imply that family-discrepancy, perceived level of not meeting family standards, can be as or even more relevant to one's psychological distress than one's self-discrepancy. A focus on self-improvement rather than self-enhancement may imply that having a certain level of discrepancy may not be as detrimental for Asian-Americans as it may be for Caucasian-Americans. My study will incorporate a family perspective on perfectionism and also examine the role of collectivism in the relationships between personal and family perfectionism and psychological well-being.

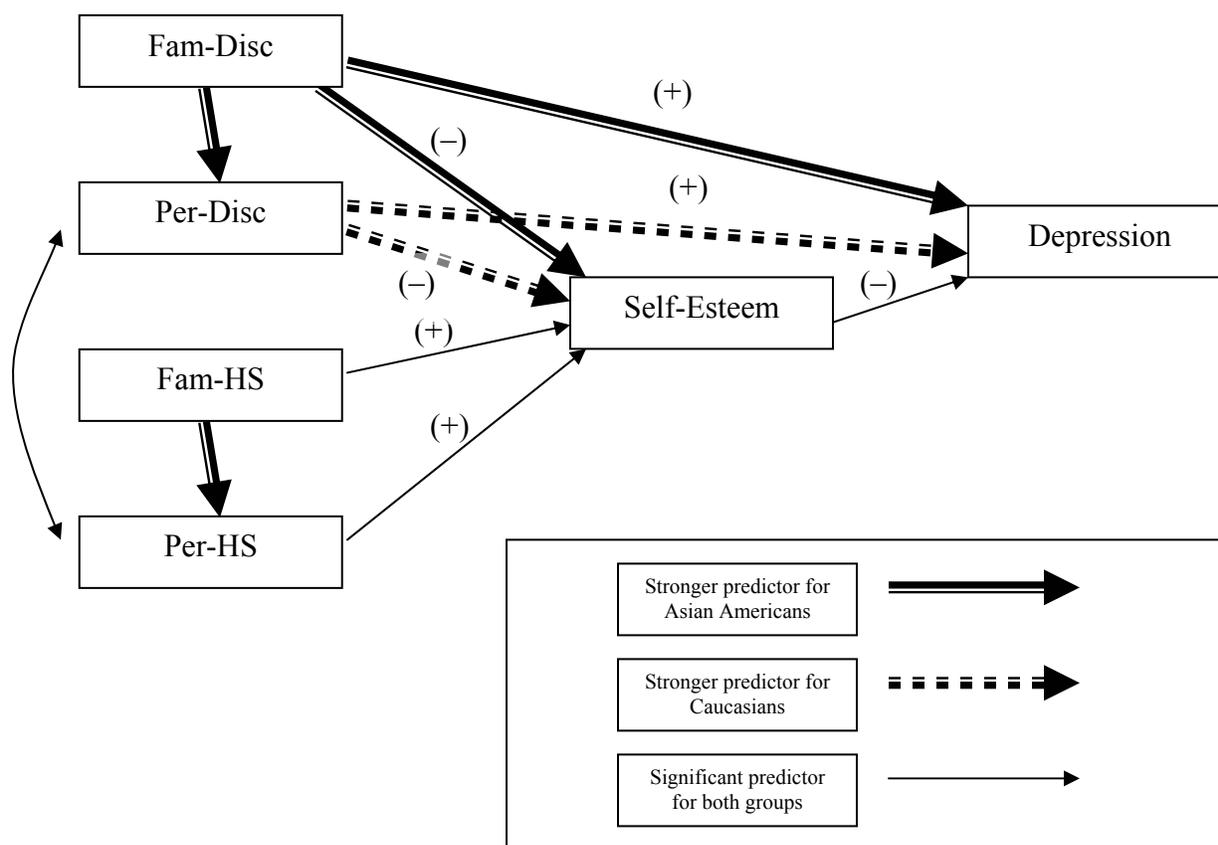
### The Present Study

The main purpose of this study is to explore the concept of perfectionism in a collectivistic culture. Past research has viewed perfectionism as an individualistic trait with a focus on personal goals and achievement. However, it has been noted that family expectations and standards have been an important part of how Asians and Asian-Americans view themselves and make decisions. This study will not only examine perfectionism from an individual perspective but will also include a perceived family perspective. To increase variance and highlight cross-ethnic difference, the study will compare two samples. The first sample will include East Asians and Asian Americans of Chinese, Taiwanese, Japanese, or Korean descent. The other sample will be comprised of Caucasian-Americans. The hypotheses for this study are:

Hypothesis 1: Asian/Asian-American participants will have significantly higher Personal Discrepancy and Family Discrepancy scores than Caucasian-American participants. This hypothesis is based on past studies that indicated Asian or Asian-American samples had significantly higher scores than Caucasian-American samples on the APS-R Discrepancy subscale (Wang, et al., 2007, in press), the FMPS Parental Criticism subscale (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002), and the three domains of Discrepancy measured by Higgins's (1987) theory of self-discrepancy (Hardin & Leong, 2005).

Hypothesis 2: Personal Discrepancy will be a weaker predictor of Depression and Self-Esteem for the Asian/Asian-American sample than for the Caucasian-American sample. This hypothesis will be examined through a multiple-group path analysis (see Figure 1). Cross-group equality constraints will be specified and then released so that group differences on these identified paths will be tested.

**Figure 1: Structural Model**



Hypothesis 3: Family Discrepancy will be a stronger predictor of Depression and Self-Esteem for the Asian/Asian-American sample than for the Caucasian-American sample. This hypothesis will be examined through a similar multiple-group path analysis as Hypothesis 2.

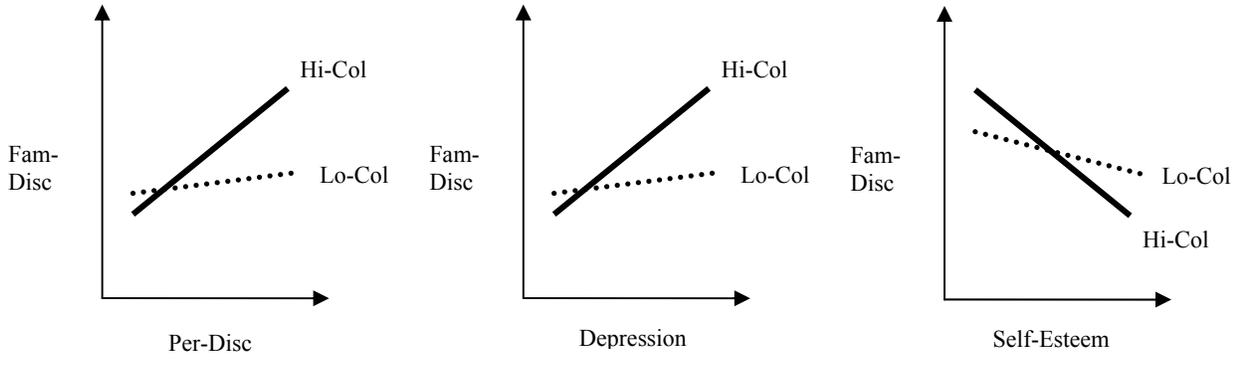
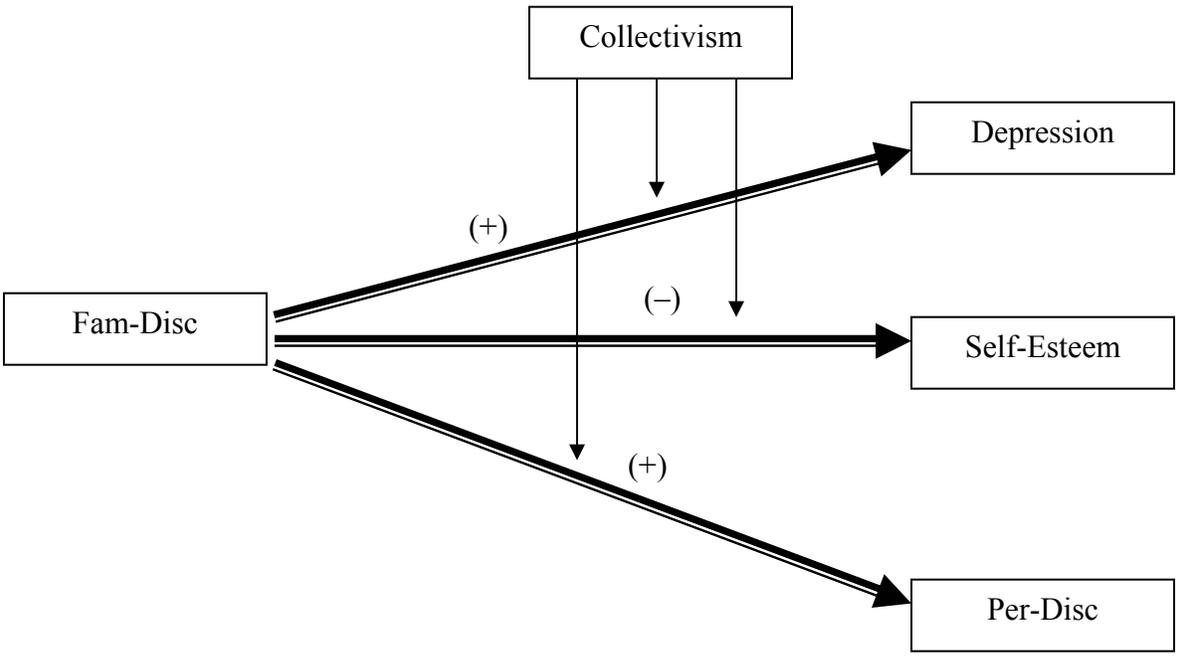
Hypothesis 4: Family High Standards will be a stronger predictor of Personal High Standards for the Asian/Asian-American sample than the Caucasian-American sample. Similarly, Family Discrepancy will be a stronger predictor for Personal Discrepancy for the Asian/Asian-American sample than the Caucasian-American sample. This set of hypotheses is based on the collectivistic conception that family plays a more influential role in Asian/Asian-American individuals. This set of hypothesis will be examined through a similar multiple-group path analysis as Hypothesis 2.

Hypothesis 5: The correlation between Personal High Standards and Personal Discrepancy will be significantly higher in the Asian/Asian-American sample compared to the Caucasian-American sample. This higher correlation pattern between these two APS-R subscales has been found in various studies with Chinese participants (Wang, et al., 2007, in press). The correlation between Family High Standards and Family Discrepancy is also expected to be higher in the Asian/Asian-American sample compared to the Caucasian-American sample. This hypothesis is based on the possibility of Discrepancy being less negative for Asians than Americans (Cheng et al., 1999; Wang, et al., 2007, in press).

Hypothesis 6: Both Personal and Family High Standards will be positive predictors of Self-Esteem for both samples. There have been inconsistent findings in this relationship. Rice et al. (1998) did not find a significant relationship between Adaptive Perfectionism and Self-Esteem. However, in Ashby and Rice's (2002) study, High Standards was a positive and significant predictor of Self-Esteem. In terms of comparing the Asian-American and Caucasian-American samples, no past studies suggest any specific differences.

Hypothesis 7: Collectivism will be a moderator in the relationships of Family Discrepancy with Depression, Self-Esteem, and Personal Discrepancy. For participants with higher Collectivism scores, the relationship between Family Discrepancy and these three dependent variables will be stronger than those in the lower Collectivism group (see Figure 2).

Figure 2: Moderating Effects



## Chapter 3

### Method

This chapter is an outline of the methodology to be used in this study. Participants, data collection procedures, and instruments are discussed. The proposed structural model of the study is also described.

#### *Participants*

Participants consist of two samples. The targeted number of participants, 200 Asians/Asian-Americans and 200 Caucasian-Americans, was determined by the use of path analysis. The rule of thumb for path analysis is to have 5-10 times as many observations as estimated parameters (Klem, 1995). A 10:1 ratio of the number of cases to the number of estimated parameters is a realistic goal and a ratio lower than 5:1 may lead to doubtful results (Kline, 2005). The structural model includes around 15 parameters to be estimated.

The first sample consists of 252 Asian/Asian-American college students (48 men & 204 women) who originated from East Asian countries such as China, Taiwan, Japan, and Korean. Sixty-two percent of the participants in this sample were born in the U.S. and 38% were born in another country. Eighty-one percent of the participants in this sample identified as Americans, while the other 19% did not. Among the 203 participants that identified as American, 56 reported being born in a foreign country, 116 reported being a second generation Asian-American, 31 identified as being a third or more generation Asian-American. The majority of participants (74%) were from a university located in the West region of the U.S. and 21% were from the northeast region of the U.S. Nineteen percent of the participants were graduate students and 79% were undergraduate students. The age of the participants ranged from 18 to 54 ( $M =$

21.97,  $SD = 5.00$ ). Seventy-five percent of the participants' fathers had college educations, while 70% of the participants' mothers had completed college.

The second sample consists of 386 Caucasian-American college students (68 men & 317 women). The majority of participants (57%) were from a university located in the Northeast region of the U.S. and 41% were from the West region of the U.S. The majority of participants (99%) in this sample were undergraduate students. The age of the participants ranged from 18 to 40 ( $M = 20.05$ ,  $SD = 2.31$ ). Seventy-nine percent of the participants' fathers had college educations, while 79% of the participants' mothers had college educations.

#### *Data Collection Procedure*

Participants were recruited through (a) listserv emails sent to Asian American and international student organizations, (b) flyers posted on the Penn State University campus, (c) two Penn State University undergraduate classes, (d) USC psychology department subject pool, and (e) word of mouth. Data was collected online through [www.psychdata.com](http://www.psychdata.com). All questionnaires were administered in English.

#### *Measures*

*Demographic Questionnaire.* The following information was requested on the demographic questionnaire: age, gender, race, marital status, academic year in school, major, type of school, childhood community, campus environment, years in the U.S., national origin, generation status, parents' education levels, parents' expectations, and GPA. The Demographic Questionnaire can be found in Appendix F.

*Personal Perfectionism.* Perfectionism was measured using the APS-R (Slaney et al., 1996). The APS-R is made up of three subscales: High Standards (7 items), Order (4 items), and Discrepancy (12 items). The High Standards subscale measures the possession of high standards

for achievement and performance. The Order subscale measures a preference for neatness and orderliness. The Discrepancy scale measures the degree to which the respondents perceive themselves as failing to meet their standards for performance. Items are responded to by using a 7-point Likert scale ranging from 1 = *strongly disagree* through 7 = *strongly agree*. Exploratory and confirmatory factor analyses have supported the three factor structure using American participants (Slaney et al., 2001) and Chinese participants (Wang, et al., 2007, in press). In the American sample, structure coefficients ranged from .49 to .85. Among American samples that were predominately Caucasians, Cronbach's coefficient alphas ranged from .91 to .92 for Discrepancy, .82 to .85 for High Standards, and .85 to .86 for Order (Grzegorek, et al., 2004; Rice & Slaney, 2002; Suddarth & Slaney, 2001). The Chinese version of the APS-R with samples of participants from Taiwan and Hong Kong yielded Cronbach's coefficient alphas that ranged from .87 to .88 for Discrepancy, .82 to .84 for High Standards, and .68 to .73 for Order (Wang, et al., 2007, in press). Data in support of the concurrent and discriminant validity of the scores derived from APS-R subscales provide a promising nomological network of relationships (Ashby & Kottman, 1996; LoCicero & Ashby, 2000; Rice & Slaney, 2002; Slaney et al., 1998, 2001, 2002; Suddarth & Slaney, 2001). In samples with mostly Caucasian participants, factor intercorrelations were found to be small to moderate; the correlation coefficients for the relationship between High Standards and Discrepancy subscale scores ranged from -.12 to .10 (Grzegorek, et al., 2004; Slaney et al., 2001; Suddarth & Slaney, 2001). The correlation between High Standards and Order scores ranged from .32 to .42, and between Order and Discrepancy ranged from -.06 to .06 (Grzegorek, et al., 2004; Slaney et al., 2001; Suddarth & Slaney, 2001). However, in Chinese samples from Hong Kong and Taiwan, the correlation coefficients for the relationship between High Standards and Discrepancy subscale scores were higher than the

correlations found for Caucasian samples and ranged from .34 to .37 (Wang, et al., 2007, in press). In these studies with Chinese samples, correlations between High Standards and Order scores and those between Discrepancy and Order scores were similar to past U.S. studies. The APS-R was chosen to measure perfectionism over other perfectionism measures (i.e., Frost, et al., 1990, Hewitt & Flett, 1991) because the APS-R subscales better represent the essential nature that defines the construct of perfectionism and clearly distinguishes and addresses the negative and positive aspects of the perfectionism (Slaney et al., 2001). Furthermore, past studies have demonstrated the ability of the APS-R to discriminate between adaptive and maladaptive perfectionists through cluster analyses (Grzegorek, et al., 2004; Rice & Slaney, 2002; Suddarth & Slaney, 2001).

*Perceived Family Perfectionism.* The Almost Perfect Scale-Family (APS-F; Methikalam, Slaney, & Wang, 2005) was used to measure participants' perceptions of the level of perfectionism that exists in their family. The APS-F was developed by modifying the APS-R to measure the perceived High Standards, Order, and Discrepancy related to one's family. It is made up of the same three subscales of the APS-R: High Standards (6 items), Order (4 items), and Discrepancy (13 items). The High Standards subscale measures the perceived degree of high standards for achievement and performance set by one's family. The Order subscale measures the preference for neatness and orderliness in one's family. The Discrepancy subscale measures the degree to which the respondents perceive themselves as failing to meet their family's standards for performance. Similar to the APS-R, items were responded to by using a 7-point Likert scale ranging from 1 = *strongly disagree* through 7 = *strongly agree*. Subscale scores were the sum of the corresponding items for each subscale. Cronbach's coefficient alphas for the High Standards, Order, and Discrepancy subscales were .85, .78, and .95, respectively in

a sample of 284 college students in the U.S. (Methikalam et al., 2005). A Chinese version of the APS-F was developed by translating the 23 APS-F items that corresponded to the APS-R from English into Chinese. Cronbach's coefficient alphas for the High Standards, Order, and Discrepancy subscales were .80, .78, and .92, respectively in a sample of 348 Chinese college students from Taiwan (Wang et al., 2006). Structure coefficients of a confirmatory factor analysis ranged from .39 to .82 for High Standards, .56 to .76 for Order, and .36 to .89 for Discrepancy (Wang et al., 2006).

*Depression.* Depression was assessed with the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). The CES-D consists of 20 items and four subscales. The Depressed Affect subscale (5 items) measures dysphoric experiences, such as feeling depressed, lonely, and having crying spells. The Positive Affect subscale (4 items) measures optimistic and happy feelings. The Somatic and Retarded Activity subscale (7 items) measures problems related to sleep, appetite, concentration, and energy. The Interpersonal Symptoms subscale (4 items) measures perceptions of being disliked by others. Respondents report the frequency with which they experienced each scale item during the previous week using a 4-point Likert scale that ranges from 0 = *rarely or none of the time* through 3 = *most or all of the time*. However, studies have also shown that the four factors of the CES-D have not been as separable among Chinese Americans (Ying, 1988) compared to past U.S. samples. For that reason the total score derived from the measure will be used in the present study. The possible range of total scores is from 0 to 60 with a higher score indicating a greater level of depressive symptoms. Four items of the scale are worded positively and need to be recoded before summing total scores. The CES-D has been a widely used measure for depression with good psychometric properties (i.e., Knight, Williams, McGee, & Olaman, 1997; Radloff, 1977). Cronbach's

coefficient alphas for the total CES-D score have ranged from .84 to .90 (Breslau, 1985; Radloff, 1977). Cronbach's coefficient alphas for Asians and Asian-American university students have ranged from .88 to .89 (Hardin & Leong, 2005; Ying, Lee, & Tsai, 2004; Ying, Lee, Tsai, Yeh, & Huang, 2000). Test-retest correlations were in the moderate range. Test-retest correlations ranged from .51 to .67 between intervals of 2 to 8 weeks and .32 to .54 for intervals of 12 months (Radloff, 1977). The 12-month test-retest correlation was .54 for participants that reported no major negative life events had occurred between the test-retest period (Radloff, 1977). The test-retest correlation over a 1-month period for a sample of Chinese Americans was .77 (Ying et al., 2000). The CES-D scores discriminated well between samples of psychiatric patients and the general population (Radloff, 1977). A score of 16 has been established as the cutpoint for depression (Himmelbarb & Murrell, 1983; Radloff, 1977; Zich, Attkisson, & Greenfield, 1990). Discriminant validity has been supported by the correlations between the CES-D and other self-reported measures (Radloff, 1977).

*Self-Esteem.* The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used to measure self-esteem in this study. The RSES consists of 10 items designed to measure a general perspective of self-worth. Responses are reported on a 4-point Likert scale that ranges from *strongly disagree* to *strongly agree*. Half of the items are worded positively and half negatively. The total score is summed after recoding the negatively worded items. Higher scores indicate greater self-esteem. The RSES is a widely used measure of self-esteem, which has been administered to participants of various cultural backgrounds. Adequate reliability for RSES scores has been demonstrated and summarized by Goldsmith (1986) and Crandell (1973). The internal consistency reliability has ranged from .86 to .93 (Goldsmith, 1986) and test-retest reliability over a 2-week period was .85 (Crandell, 1973). Among Asian-American college and

high school students, the internal consistency reliability has ranged from .85 to .88 (Bracey, Bámaca, & Umaña-Taylor, 2004; Lee, 2003; Ying et al., 2004) and test-retest reliability over a 1-month period was .90 (Ying et al., 2004). The RSES has been translated into many languages and used in various nations. The factor structure across nations was largely invariant (Schmitt & Allik, 2005). Convergent and discriminant validity have been supported by correlations with measures of neuroticism, extraversion, and romantic attachment styles (Schmitt & Allik, 2005).

*Collectivism.* The Individualism-Collectivism Scale (INDCOL; Triandis, 1995) was used to measure collectivism in this study. According to Triandis (1995), INDCOL measures both the vertical and horizontal dimensions of individualism and collectivism. INDCOL is a 32-item self-report measure, which includes four subscales: Horizontal Individualism (HI), Horizontal Collectivism (HC), Vertical Individualism (VI), and Vertical Collectivism (VC). In this study, the HC and VC subscales will be combined to compose an overall collectivism score because both aspects seem to be relevant to the impact family standards may have on Asian-Americans. HC refers to people's interdependence and merging with their in-groups. A sample HC item is "*My happiness depends very much on the happiness of those around me.*" VC adds a hierarchy aspect and refers to people's submission to authorities and willingness to sacrifice their own goals to meet the expectations or goals of their in-groups. An example of a VC item is "*I would do what would please my family, even if I detested that activity.*" Responses are reported on a 9-point Likert scale that ranges from 1 = *strongly disagree* to 9 = *strongly agree*. Internal consistency reliabilities for the subscales have been moderately acceptable. The alphas ranged from .74 to .75 for the HC subscale, were .68 for the VC subscale, and ranged from .78 to .79 for the combined Collectivism scale among Asian-American and Caucasian-American college students (Kim, Atkinson, & Yang, 1999; Singelis, Triandis, Bhawuk, & Gelfand, 1995).

Convergent validity has been supported by the correlations of HC and VC with other measures of collectivism (Singelis et al., 1995), such as the Self-Construal Scale, Interdependence (SCS-T; Singelis, 1994) and Sinha collectivism items (SN-C; Sinha & Verma, 1994). Validity has also been supported by studies comparing groups of participants from different ethnic backgrounds. An Asian group scored significantly higher than a European group on the VC subscale (Singelis et al., 1995). A group of Chinese international students in Australia scored significantly higher than Australian and U.S. students on the VC subscale and significantly lower on the HI and VI subscale after separating items that displayed differential item functioning (Snider & Styles, 2005). No significant group differences were found on the HC subscale between different ethnic groups (Singelis et al., 1995; Snider & Styles, 2005).

## Chapter 4

### Results

#### *Preliminary Test of Sex Differences*

A preliminary test of sex differences was conducted using univariate ANOVAs on all subscales for both the Asian-American and Caucasian-American samples. For both samples, no  $F$  tests were statistically significant at the  $p < .007$  (.05/7) level, after Bonferroni adjustments of the critical  $p$ -value to control for family wise error rate. Results are presented in Table 1 and Table 2.

**Table 1**  
*Means and Standard Deviations by Sex (Asian-Americans)*

Subscale	Male n = 48		Female n = 204		F	eta <sup>2</sup>
	M	SD	M	SD		
APS-R HS	39.93	6.37	40.88	5.93	.97	.00
APS-R Disc	46.26	17.03	46.81	16.67	.04	.00
APS-F HS	32.96	6.08	34.28	6.13	1.82	.01
APS-F Disc	42.59	17.75	38.92	19.04	1.48	.01
CES-D	14.54	10.68	16.25	11.30	.90	.00
RSES	31.33	5.91	30.20	6.21	1.32	.01
COL	97.51	14.88	97.51	14.93	.00	.00

*Note.* \* All  $F$  tests were non-significant at  $p < .007$  level, based on  $df = 1, 251$ . The critical  $p$ -value of .007 (.05/7) was made after Bonferroni adjustment to control for family wise error rate. APS-R HS = Personal High Standards; APS-R Disc = Personal Discrepancy; APS-F HS = Family High Standards; APS-F Disc = Family Discrepancy; CES-D = Depression; RSES = Self-esteem; COL = Collectivism.

**Table 2**  
**Means and Standard Deviations by Sex (Caucasian-Americans)**

Subscale	Male n = 68		Female n = 317		F	eta <sup>2</sup>
	M	SD	M	SD		
APS-R HS	40.27	5.79	41.88	5.08	5.31	.01
APS-R Disc	41.55	13.53	42.07	15.26	.07	.00
APS-F HS	33.82	5.38	34.78	5.29	1.81	.00
APS-F Disc	33.10	13.88	30.79	16.22	1.18	.00
CES-D	11.61	8.11	14.71	9.41	6.38	.02
RSES	33.32	5.15	32.19	5.33	2.56	.01
COL	95.30	10.74	99.75	13.64	6.37	.02

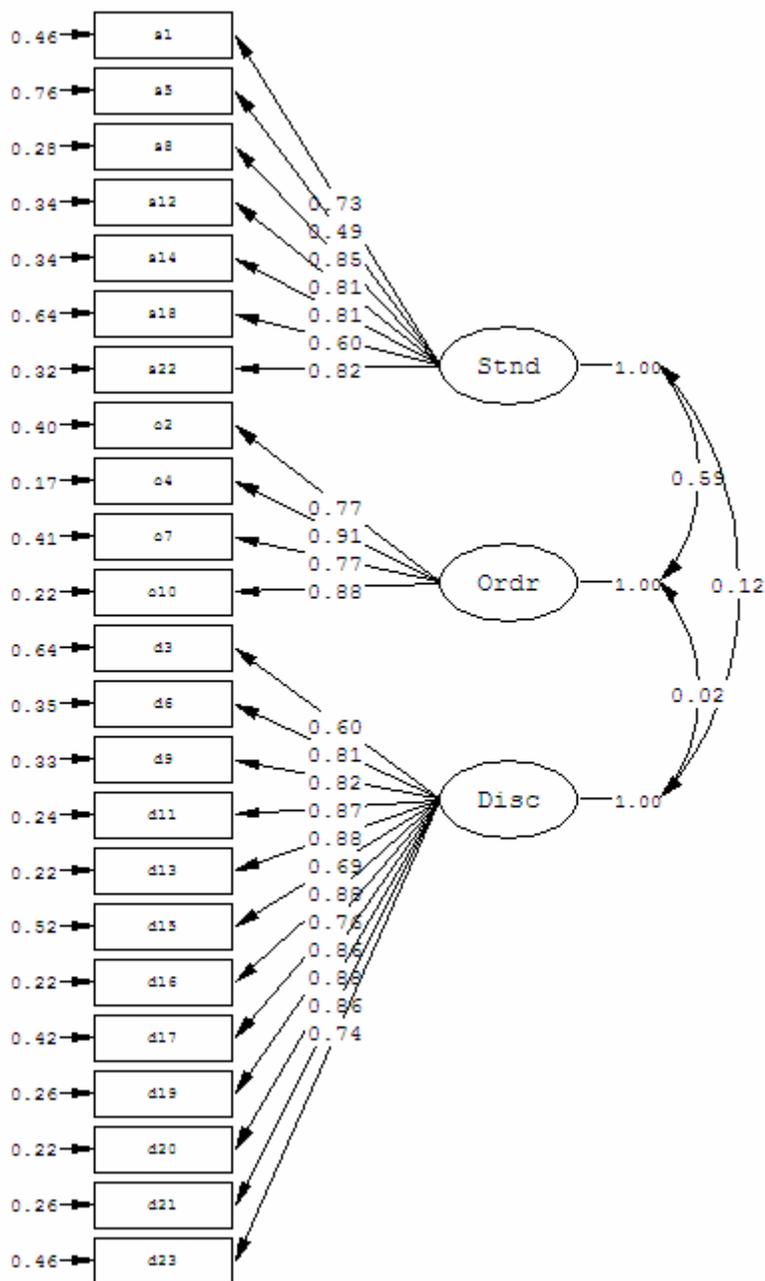
*Note.* \* All *F* tests were non-significant at  $p < .007$  level, based on  $df = 1, 384$ . The critical *p*-value of .007 (.05/7) was made after Bonferroni adjustment to control for family wise error rate. APS-R HS = Personal High Standards; APS-R Disc = Personal Discrepancy; APS-F HS = Family High Standards; APS-F Disc = Family Discrepancy; CES-D = Depression; RSES = Self-esteem; COL = Collectivism.

#### *Confirmatory Factor Analyses – APS-R*

Multiple-group confirmatory factor analyses (CFA) of the APS-R were conducted to examine factorial invariance between the two samples. The LISREL 8.80 program model was used to perform the CFAs. The analyses used covariance matrices with maximum likelihood as the estimation method. Model fit was informed by the comparative fit index (CFI), the standardized root-mean-square residual (SRMR, the average difference in residuals based on comparing the observed covariance with the covariance explained by the model), and the root-mean-square error of approximation (RMSEA). The general guideline of the CFI is that either a minimum of .90 (Byrne, 1998) or .95 (Hu & Bentler, 1999) is interpreted as an acceptable fit of the data to the model. RMSEA values less than .05 are suggestive of a close fit, between .05 and .08 a fair fit, between .08 and .10 a mediocre fit, and above .10 a poor fit (MacCallum, Browne, & Sugawara, 1996). SRMR values of .08 or less are desired (Hu & Bentler, 1999).

Prior to conducting multigroup confirmatory analysis, it is recommended that each individual group be analyzed and respecified if necessary (Byrne, 1998). Individual CFAs were conducted for the Asian-American and Caucasian-American group. The CFA model constrained the 12 APS-R items tapping the Discrepancy subscale to load onto the Discrepancy factor, the 7 High Standards items to load onto the High Standards factor, and the remaining 4 Order items to load onto the Order factor. The CFA models fulfilled the identification requirements by having degrees of freedom ( $df=227$ ) over zero and latent variables assigned a scale (1.0). The factors were permitted to correlate with one another. For the Asian-American sample, structure coefficients for the Discrepancy factor ranged from .60 to .88; coefficients for High Standards ranged from .49 to .85, and for Order ranged from .77 to .91. These coefficients provided support for the convergent validity of the APS-R subscales. The correlations between the factors were .12 (Discrepancy and High Standards), .02 (Discrepancy and Order), and .59 (High Standards and Order). The CFA path diagram for the Asian-American sample is presented in Figure 3. The fit statistics for this model were:  $\chi^2(227, N = 252) = 1025.30, p < .001, CFI = .97, SRMR = .09, RMSEA = .08$  (90% Confidence Interval .07-.08). Based on the general guidelines, the CFI and RMSEA supported the model, but the SRMR indicated a less than ideal fit.

**Figure 3: Confirmatory Factor Analysis of the APS-R (Asian-Americans)**



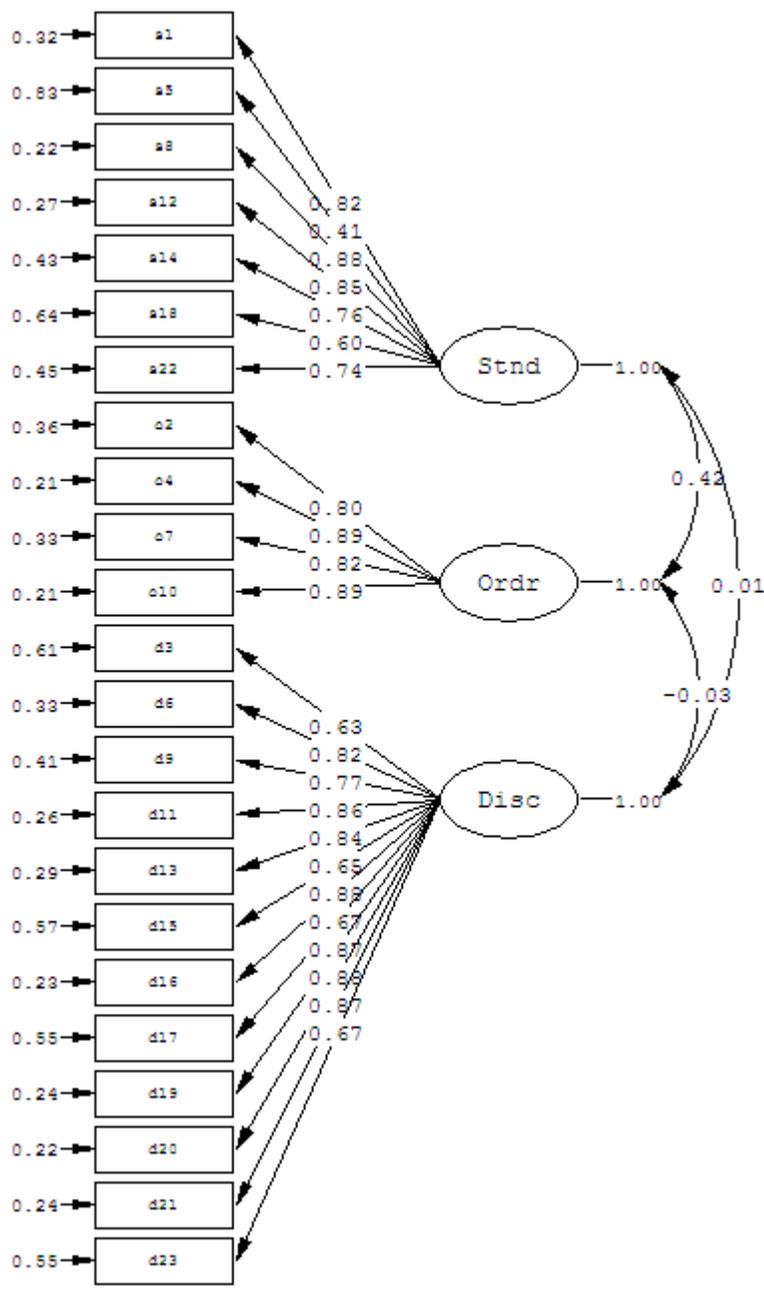
For the Caucasian-American sample, structure coefficients for the Discrepancy factor ranged from .63 to .88; coefficients for High Standards ranged from .41 to .88 and for Order ranged from .80 to .89. These coefficients provided support for the convergent validity of the APS-R items. The correlations between the factors were .01 (Discrepancy and High Standards),

-.03 (Discrepancy and Order), and .42 (High Standards and Order). The CFA path diagram for the Caucasian-American sample is presented in Figure 4. The fit statistics for this model were:  $\chi^2$  (227, N = 386) = 1162.70,  $p < .001$ , CFI = .97, SRMR = .08, RMSEA = .07 (90% Confidence Interval .06-.08). Based on the general guidelines, the CFI, SRMR, and RMSEA all supported the fit between the model and the data.

A multiple-group CFA was conducted to examine the factorial invariance of the APS-R. Although adequacy of model fit was examined, the primary purpose of this analysis was to examine the item-to-factor structure coefficients and whether the set of indicators for each subscale measures the same construct across these two samples. The common practice is to compare a model in which the unstandardized factor loadings across two samples are constrained to be equal with a model without the constraints. If the  $\chi^2$  model fit of the constrained model is not significantly worse than the unrestricted model, this will indicate that the factor structures between these two samples are comparable (Kline, 2005). If the model fit is considerably worse, further examination of the individual factor loadings will be required to determine partial factor invariance (Kline, 2005).

In testing the invariance of the APS-R between Asian-Americans and Caucasian-Americans, the hypothesis that the number of underlying factors was equivalent was first examined. The first model (M1) set the same item-to-factor specification as the individual CFAs for the two groups. The fit statistics for this model were:  $\chi^2$  (454, N = 638) = 2188.00,  $p < .001$ , CFI = .93, RMSEA = .11 (90% Confidence Interval .11-.11). Based on the general guidelines, the CFI supported the model but not the RMSEA.

Figure 4: Confirmatory Factor Analysis of the APS-R (Caucasian-Americans)



Next, a model (M2) in which factor loadings were set to be equivalent across the two samples was compared against the first model (M1). The chi-square difference between the first and second model was  $\Delta\chi^2(20, N = 638) = 605.49, p < .001$ . The interpretation of this

comparison was that the hypothesis of invariant factor loadings across these two samples was not supported. Modification indices suggested that 3 items (#1, #4, & #10) did not have similar factor loadings across the two samples. Since the factor loading invariance test was not upheld, the test of factor variance/covariance invariance between groups was unnecessary. Comparisons of the model fit indices for the multiple-group CFAs are summarized in Table 3. In summary, individual-group CFAs supported the APS-R item-to-factor specifications for both groups. However, factor loadings were not equivalent between the Asian-American and Caucasian-American groups. The sums of the subscale items were used for the Personal High Standards and Personal Discrepancy scores without any adjustment because the APS-R item-to-factor specifications were supported for both groups.

**Table 3**  
*Assessment Fit Indices for the Multiple-Group Confirmatory Factor Analyses for the APS-R*

Model	$\chi^2$	<i>df</i>	$\Delta\chi^2$	$\Delta df$	RMSEA	CFI
M1	2188.00	454			.11	.93
M2 (vs. M1)	2793.49	474	605.49	20	.12	.91

*Note.* \*  $N=252$  for the Asian-American (AA) models and  $N=386$  for the Caucasian-American (CA) models. M1 = Three factor structure invariant; M2 = Pattern of factor loadings held invariant. RMSEA = root-mean-square error of approximation; CFI = comparative fit index.

#### *Confirmatory Factor Analyses – APS-F*

The confirmatory factor analyses procedure for the APS-F was similar to the steps used with the APS-R. The CFA model constrained the 13 APS-F items tapping the Discrepancy subscale to load onto the Discrepancy factor, the 6 High Standards items to load onto the High Standards factor, and the remaining 4 Order items to load onto the Order factor. Similar to the APS-R, the CFA models for the APS-F fulfilled the identification requirements by having degrees of freedom ( $df=227$ ) over zero and latent variables assigned a scale (1.0). The factors

were permitted to correlate with one another. For the Asian-American sample, structure coefficients for the Discrepancy factor ranged from .70 to .91; coefficients for High Standards ranged from .62 to .95, and for Order ranged from .77 to .84. These coefficients provided support for the convergent validity of the APS-F items. The correlations between the factors were .24 (Discrepancy and High Standards), .33 (Discrepancy and Order), and .68 (High Standards and Order). The CFA path diagram for the Asian-American sample is presented in Figure 5. The fit statistics for this model were:  $\chi^2$  (227, N = 252) = 1096.40,  $p < .001$ , CFI = .97, SRMR = .08, RMSEA = .08 (90% Confidence Interval .08-.09). Based on the general guidelines, the CFI, SRMR, and RMSEA all supported the model. For the Caucasian-American sample, structure coefficients for the Discrepancy factor ranged from .72 to .93; coefficients for High Standards ranged from .59 to .92 and for Order ranged from .75 to .87. These coefficients provided support for the convergent validity of the APS-F items. The correlations between the factors were .08 (Discrepancy and High Standards), .17 (Discrepancy and Order), and .48 (High Standards and Order). The CFA path diagram for the Caucasian-American sample is presented in Figure 6. The fit statistics for this model were:  $\chi^2$  (227, N = 386) = 1078.48,  $p < .001$ , CFI = .98, SRMR = .09, RMSEA = .06 (90% Confidence Interval .05-.07). The CFI and RMSEA supported the model, but the SRMR indicated a less than ideal fit. A summary of the individual CFAs for each sample of the APS-R and APS-F is presented in Table 4.

The multiple-group CFAs for the APS-F were conducted following the same procedures with the APS-R. First, the hypothesis that the number of underlying factors was equivalent between the two samples was examined. The first model (M1) set the same item-to-factor specification as the individual CFAs for the two groups. The fit statistics for this model were:  $\chi^2$

(454, N = 638) = 2174.88,  $p < .001$ , CFI = .93, RMSEA = .11 (90% Confidence Interval .10-.11).

Based on the general guidelines, the CFI supported the model but not the RMSEA.

**Figure 5: Confirmatory Factor Analysis of the APS-F (Asian-Americans)**

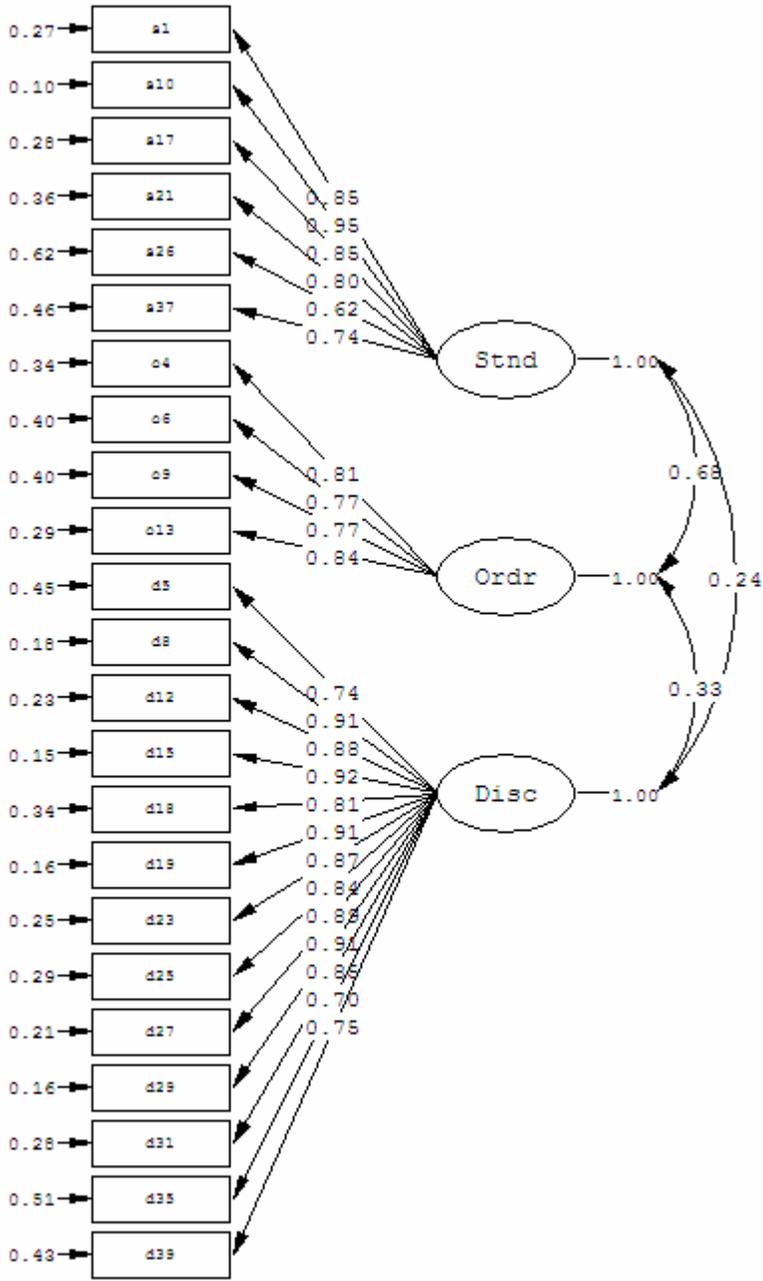
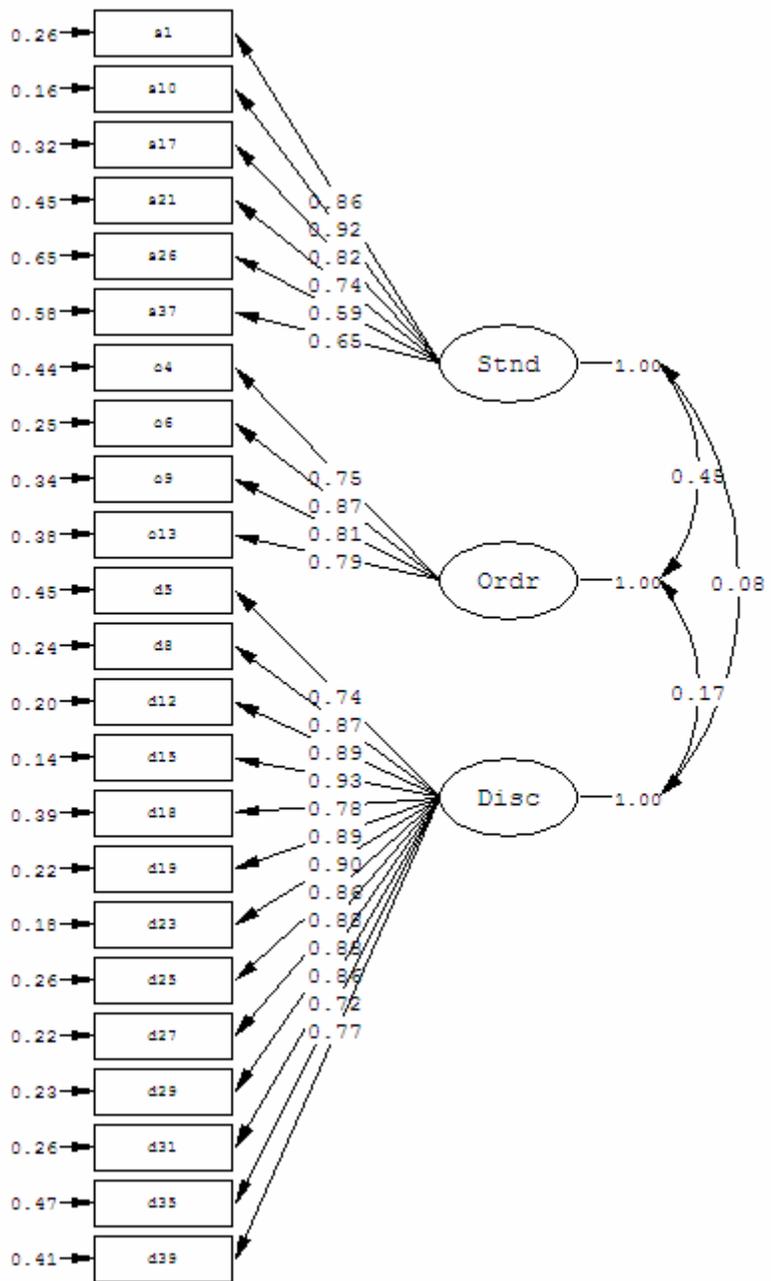


Figure 6: Confirmatory Factor Analysis of the APS-F (Caucasian-Americans)



**Table 4**

*Assessment Fit Indices for the Single-Group Confirmatory Factor Analyses for the APS-R & APS-F*

<b>Model</b>	$\chi^2$	<i>df</i>	<b>RMSEA</b>	<b>CFI</b>	<b>SRMR</b>
APS-R AA	1025.30	227	.08	.97	.09
APS-R CA	1162.70	227	.07	.97	.08
APS-R all	1676.30	227	.07	.98	.08
APS-F AA	1096.40	227	.08	.97	.08
APS-F CA	1078.48	227	.06	.98	.09
APS-F all	1586.09	227	.07	.98	.08

*Note.* \*  $N=252$  for the Asian-American (AA) models and  $N=386$  for the Caucasian-American (CA) models. RMSEA = root-mean-square error of approximation; CFI = comparative fit index; SRMR = standardized root-mean-square residual. APS-R = Almost Perfect Scale-Revised; APS-F = Almost Perfect Scale-Family.

Next, a model (M2) in which factor loadings were set to be equivalent across the two samples was compared against the first model (M1). The chi-square difference between M1 and M2 was  $\Delta\chi^2(20, N = 638) = 660.16, p < .001$ . The interpretation of this comparison was that the hypothesis of invariant factor loadings across these two samples was not supported.

Modification indices were examined and suggested that 2 High Standards items (#1 & #10) did not have similar factor loadings across the two samples. Since the factor loading invariance test was not upheld, the test of factor variance/covariance invariance between groups was not conducted. Comparisons of the model fit indices for the multiple-group CFAs are summarized in Table 5. In summary, individual-group CFAs supported the APS-F item-to-factor specifications for both groups. However, factor loadings were not equivalent between the Asian-American and Caucasian-American groups. Similar to the APS-R, the sums of the subscale items were used for the Family High Standards and Family Discrepancy scores without any adjustments because the APS-F item-to-factor specifications were supported for both groups.

**Table 5**  
***Assessment Fit Indices for the Multiple-Group Confirmatory Factor Analyses for the APS-F***

<b>Model</b>	$\chi^2$	<i>df</i>	$\Delta\chi^2$	$\Delta df$	<b>RMSEA</b>	<b>CFI</b>
M1	2174.88	454			.11	.93
M2 (vs. M1)	2835.04	474	660.16	20	.13	.94

*Note.* \*  $N=252$  for the Asian-American (AA) models and  $N=386$  for the Caucasian-American (CA) models. M1 = Three factor structure invariant; M2 = Pattern of factor loadings held invariant. RMSEA = root-mean-square error of approximation; CFI = comparative fit index.

### *Descriptive Statistics*

The means and standard deviations of study variables for each sample are presented in Table 6. The intercorrelations between the subscales of the study variables in this study were separated by ethnic samples and shown in Table 7. The correlations between Personal High Standards and Self-Esteem as well as Family High Standards and Family Discrepancy were statistically significant at the .001 level for Asian-Americans but not for Caucasian-Americans. In addition, the correlation between Personal High Standards and Collectivism was statistically significant at the .001 level for Caucasian-Americans but not for Asian-Americans. For both samples, Personal High Standards was significantly and positively correlated with Family High Standards. Similarly, Personal Discrepancy was significantly and positively correlated with Family Discrepancy. Personal Discrepancy and Family Discrepancy were both significantly and positively correlated with Depression and negatively correlated with Self-Esteem. Family High Standards was significantly and positively correlated with Collectivism. Finally, Depression was significantly and negatively correlated with Self-Esteem. The internal consistency coefficient alphas for these scales were in accordance with the previous published norms ranging from .78 to .96.

**Table 6**  
*Means and Standard Deviations by Ethnic Samples*

Subscale	Asian-Americans n = 252		Caucasian-Americans n = 386		F	eta <sup>2</sup>
	M	SD	M	SD		
APS-R HS	40.70	6.01	41.58	5.25	3.84	.01
APS-R Disc*	46.70	16.71	42.03	14.97	13.54	.02
APS-F HS	34.03	6.13	34.62	5.31	1.64	.00
APS-F Disc*	39.62	18.82	31.23	15.83	36.82	.05
CES-D	15.92	11.18	14.21	9.29	4.40	.01
RSES*	30.42	6.16	32.36	5.34	17.82	.03
COL	97.51	14.89	98.94	13.26	1.60	.00

*Note.* \* *F* tests for APS-R Disc, APS-F Disc, and RSES were significant at  $p < .001$  level, based on  $df = 1, 637$ . Other *F* tests were non-significant at the critical *p*-value of .007 (.05/7) that was made after Bonferroni adjustment to control for family wise error rate. APS-R HS = Personal High Standards; APS-R Disc = Personal Discrepancy; APS-F HS = Family High Standards; APS-F Disc = Family Discrepancy; CES-D = Depression; RSES = Self-esteem; COL = Collectivism.

**Table 7**  
*Intercorrelations between Study Variables (separated by ethnic sample)*

Variables	1	2	3	4	5	6	7
1 APS-R HS	<b>.84</b>	.07	.46*	-.11	.07	.12	.20*
2 APS-R Disc	.15	<b>.95</b>	.04	.58*	.47*	-.62*	.00
3 APS-F HS	.45*	.07	<b>.87</b>	.13	.16	-.02	.24*
4 APS-F Disc	.01	.50*	.25*	<b>.96</b>	.41*	-.47*	-.10
5 CES-D	-.09	.56*	.01	.38*	<b>.90</b>	-.68*	-.03
6 RSES	.23*	-.63*	.08	-.43*	-.69*	<b>.91</b>	.02
7 COL	.12	.17	.28*	.03	.04	-.11	<b>.78</b>

*Note.* \* $p < .001$ , two-tailed. Correlations for Asian-American participants are displayed on the lower diagonal, while correlations for Caucasian-American participants are displayed on the upper diagonal. Cronbach's coefficient alphas are displayed in bold. APS-R HS = Personal High Standards; APS-R Disc = Personal Discrepancy; APS-F HS = Family High Standards; APS-F Disc = Family Discrepancy; CES-D = Depression; RSES = Self-esteem; COL = Collectivism.

### *Analyses of Variances*

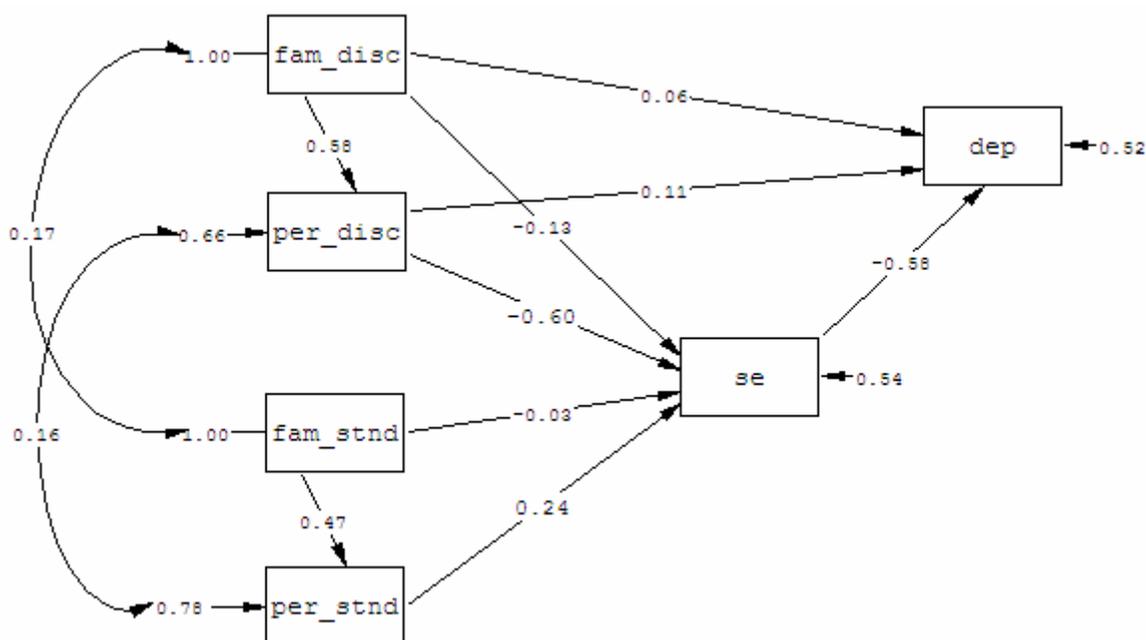
A multivariate analysis of variance (MANOVA) was conducted with ethnic group as the between subjects factor to determine whether there were significant differences among Asian-Americans and Caucasian-Americans on their scores for Personal High Standards, Personal Discrepancy, Family High Standards, Family Discrepancy, Depression, Self-Esteem, and Collectivism. Wilks's  $\Lambda = .931$ ,  $F(7,630) = 6.67$ ,  $p < .001$ , partial  $\eta^2 = .069$ . Follow-up univariate ANOVAs on all study variables were conducted to compare Asian-American and Caucasian-American participants.  $F$  tests for APS-R Discrepancy, APS-F Discrepancy, and Rosenberg Self Esteem were significant at the  $p < .001$  level. No other  $F$  tests were statistically significant at the critical  $p$ -value of .007 (.05/7) that was used after the Bonferroni adjustment to control for family wise error rate. Results are presented in Table 6. Asian-Americans reported significantly higher Personal Discrepancy and Family Discrepancy scores than Caucasian-Americans. Asian-Americans' scores on Self-Esteem were significantly lower than those of Caucasian-Americans.

### *Path Analyses*

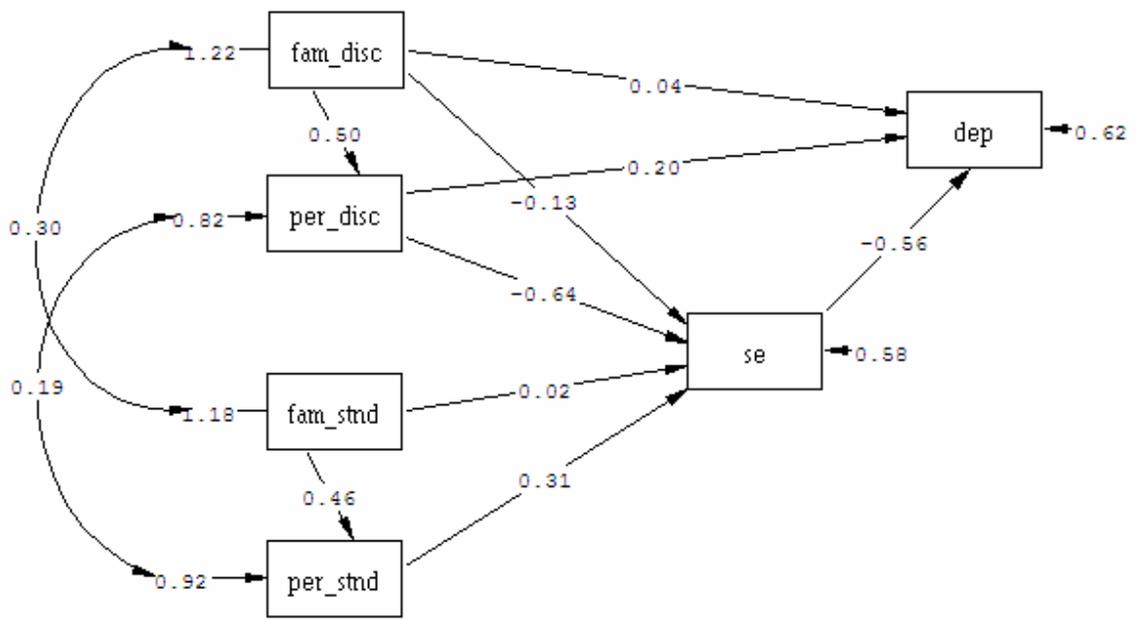
Path analyses were conducted to examine the hypothesized model. All path models fulfilled the identification requirements by having degrees of freedom over zero, where the number of observations was larger than the number of free model parameters. A path analysis was conducted to examine the fit of the model with the data of the combined sample including both Asian-Americans and Caucasian-Americans. Fit statistics for the combined sample indicated a good fit:  $\chi^2(4, N = 638) = 34.23$ ,  $p < .001$ , CFI = .98, SRMR = .05, and RMSEA = .10 (90% Confidence Interval .07-.14). The path coefficients are presented in Figure 7. Multiple-group path analyses were conducted to examine group differences. The first model

allowed the path coefficients to be set free across the Asian-American and Caucasian-American samples. The fit indices of the overall model were:  $\chi^2 (8, N = 638) = 41.72, p < .001, CFI = .99,$  and  $RMSEA = .07$  (90% Confidence Interval .04-.11). Path coefficients for the Asian-American and Caucasian-American groups are presented in Figures 8 and 9, respectively. The second multiple-group path analysis model restrained the path coefficients to be the same across the two samples. The fit indices of the overall model were:  $\chi^2 (17, N = 638) = 62.81, p < .001, CFI = .98,$  and  $RMSEA = .07$  (90% Confidence Interval .04-.09). The Asian-American group contributed 27% of the chi-square (SRMR = .07) and the Caucasian-American group contributed 73% of the overall chi-square (SRMR = .06). Path coefficients of this invariant model are presented in Figure 10. Comparing these two multiple-group models, there was a  $\Delta\chi^2$  of 21.09 with  $\Delta df = 9, p < .013$ . This indicated a significant difference in chi-square model fit.

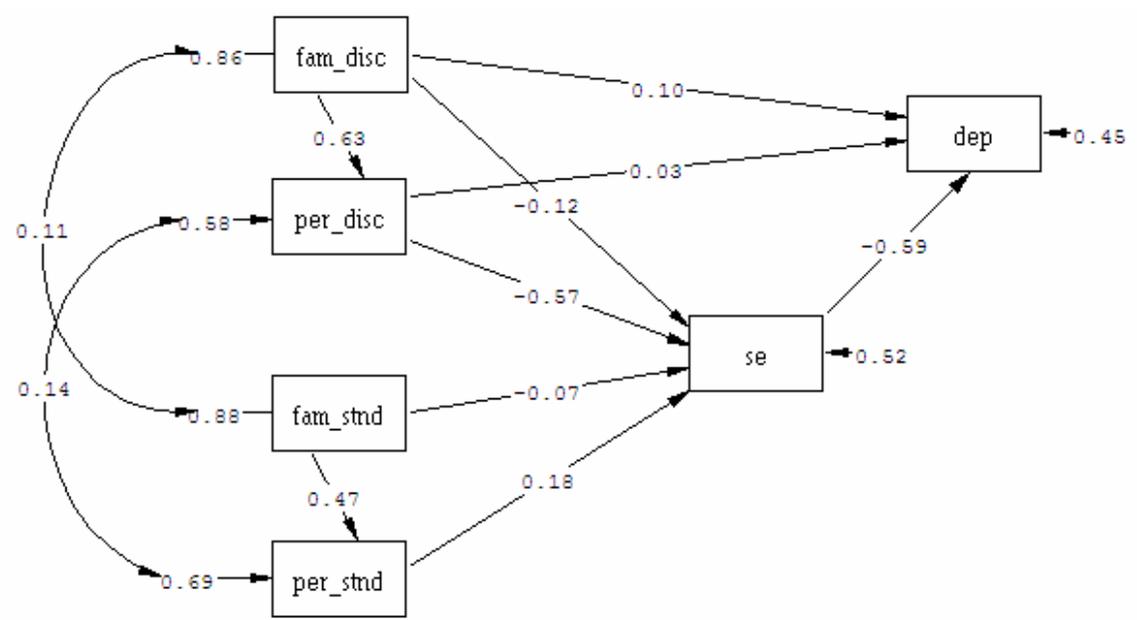
**Figure 7: Path Analysis of the Hypothesized Model (All Participants)**



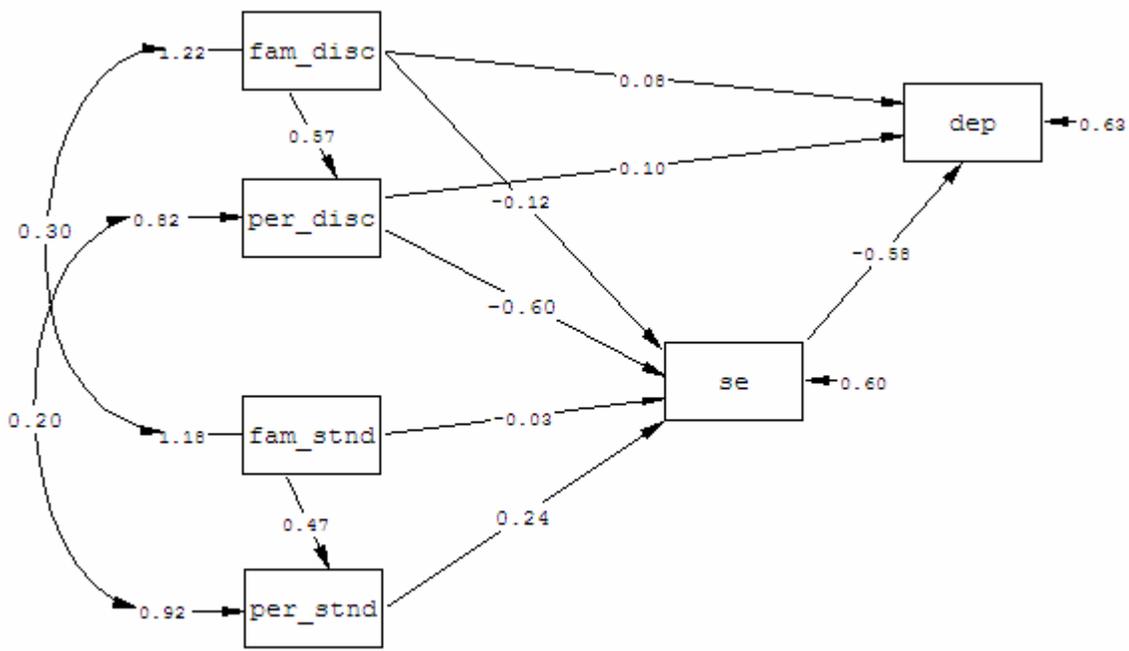
**Figure 8: Multiple-Group Path Analysis of the Hypothesized Model (Asian-Americans)**



**Figure 9: Multiple-Group Path Analysis of the Hypothesized Model (Caucasian-Americans)**



**Figure 10: Multiple-Group Path Analysis of the Hypothesized Model (path coefficients held invariant)**



A summary of the path analyses fit indices is presented in Table 8. The proposed next step was to test whether the path coefficients from Family Discrepancy were significantly higher for Asian-Americans and those from Personal Discrepancy were significantly higher for Caucasian-American. However, the results of the first multiple-group path analysis indicated that these hypotheses were not supported. Therefore, this step was not conducted. Instead, I examined the moderating effects of Collectivism scores with the combined model.

**Table 8**  
*Assessment Fit Indices for Path Analyses of the Hypothesized Model*

Model	$\chi^2$	df	$\Delta\chi^2$	$\Delta df$	RMSEA	GFI	CFI	SRMR
All	34.23	4			.10	.98	.98	.05
M1	41.72	8			.07		.99	
M2 (vs. M1)	62.81	17	21.09	9	.07		.98	

*Note.* \*  $N=252$  for the Asian-American group and  $N=386$  for the Caucasian-American group. All = Single group model with combined sample; M1 = Path structure invariant; M2 = Path coefficients held invariant. RMSEA = root-mean-square error of approximation; GFI = goodness of fit index; CFI = comparative fit index; SRMR = standardized root-mean-square residual.

#### *Post-Hoc Analyses*

*Moderating Effects of Collectivism.* The last step of the analyses was to examine the paths identified through the multiple-group path analysis that were hypothesized to be significantly different across the two groups. Participants were classified into groups of high-collectivism, medium-collectivism, and low-collectivism according to their Collectivism scores. Each group included approximately one third of the total participants. Participants with a Collectivism score over 106 were classified into the high-collectivism group; those with scores under 92 were classified into the low-collectivism group; and the other third were classified into the medium-collectivism group. To examine the moderating effects of Collectivism on the relationships between the variables of these paths, correlations between these variables were run separately for each group (see Table 9). These correlations did not support the hypothesis that the high-collectivism group would have higher correlations between Family Discrepancy and the three dependent variables compared to the low-collectivism group. Therefore, further examination of the moderation effect was not conducted.

**Table 9**  
***Correlations between Family Discrepancy and Personal Discrepancy, Depression, and Self-Esteem by Collectivism Level***

<b>Correlation with APS-F Disc</b>	<b>Low-Collectivism <i>n</i> = 205</b>	<b>Med-Collectivism <i>n</i> = 238</b>	<b>High-Collectivism <i>n</i> = 195</b>
APS-R Disc	0.58*	0.56*	0.55*
CES-D	0.48*	0.40*	0.32*
RSES	-0.55*	-0.47*	-0.41*

*Note.* \* $p < .001$ , two-tailed. Correlations between listed variables with APS-F Disc. Cronbach's coefficient alphas are displayed in bold. APS-R Disc = Personal Discrepancy; APS-F Disc = Family Discrepancy; CES-D = Depression; RSES = Self-esteem.

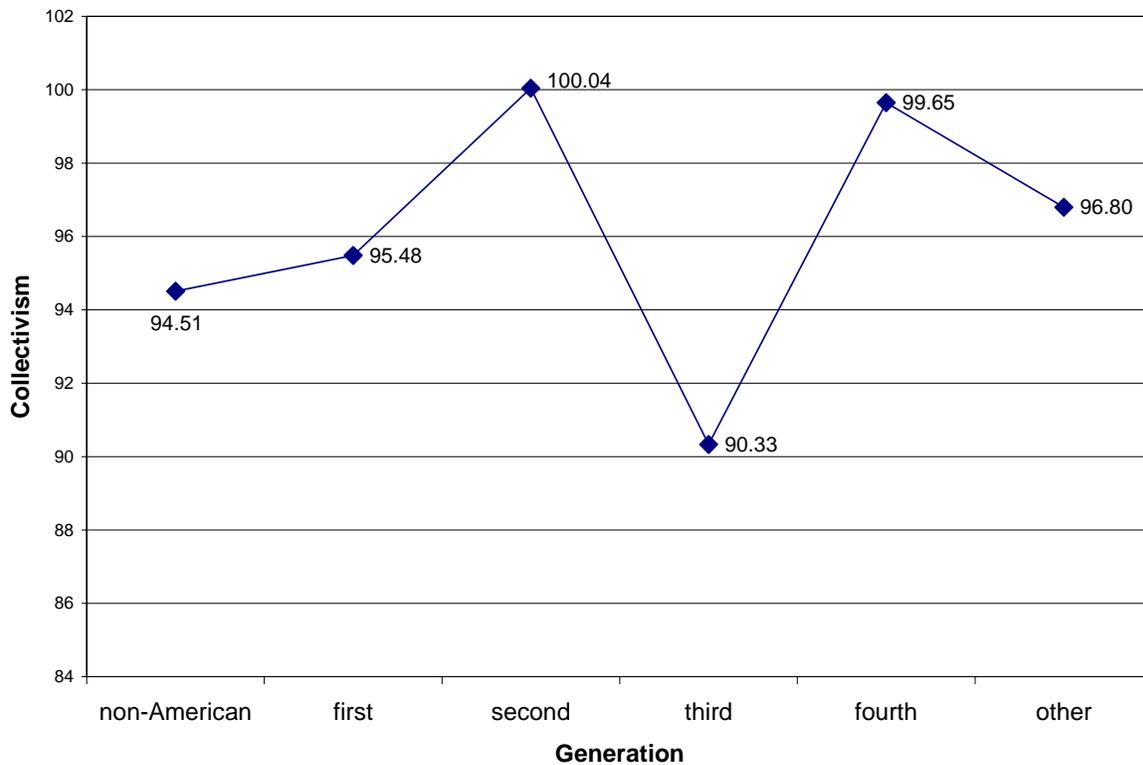
*Generational Differences on Collectivism among Asian-Americans.* To further examine the result that Asian-Americans did not have a higher Collectivism mean score than Caucasian-Americans, generational differences among Asian-Americans were analyzed. A multivariate analysis of variance (MANOVA) was conducted with generation status as the between subjects factor to determine whether there were significant differences among Asian-Americans of different generations on the Collectivism scores. Wilks's  $\Lambda = .922$ ,  $F(10,490) = 2.03$ ,  $p < .029$ , partial  $\eta^2 = .04$ . Follow-up univariate ANOVAs on the overall Collectivism, Horizontal Collectivism, and Vertical Collectivism scores were conducted to compare differences among generations.  $F$  tests for overall Collectivism and Vertical Collectivism were not significant at the  $p < .05$  level. For Horizontal Collectivism,  $F(5,246) = 2.91$ ,  $p = .014$ , however, Tukey  $B$  post hoc comparisons revealed no significant group differences at the  $p < .05$  level. The means and standard deviations are presented in Table 10. The overall Collectivism scores of different generation groups are presented in Figure 11.

**Table 10**  
**Means and Standard Deviations of Collectivism Score by Asian-American Generation Status**

	<i>n</i>	<i>Collectivism (full scale)</i>		<i>Horizontal Collectivism</i>		<i>Vertical Collectivism</i>	
		<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>	<b>M</b>	<b>SD</b>
Non-American	49	94.51	15.87	49.32	8.63	45.18	9.45
1 <sup>st</sup> Generation	56	95.48	16.30	50.25	8.13	45.23	10.84
2 <sup>nd</sup> Generation	116	100.04	14.13	53.16	7.68	46.88	9.23
3 <sup>rd</sup> Generation	9	90.33	12.98	49.56	6.80	40.78	6.92
4 <sup>th</sup> Generation	17	99.65	12.57	54.71	5.75	44.94	8.55
Other	5	96.80	5.93	54.80	4.27	42.00	3.67

*Note.* \* *F* test for Horizontal Collectivism was significant at  $p < .05$  level, based on  $df = 5, 246$ . Other *F* tests were non-significant at the critical *p*-value of .05.

**Figure 11: Means of Overall Collectivism Score by Asian-American Generation Status**



*Comparing Collectivism Items between Ethnic Groups.* The Collectivism scale items scores were also compared between Asian-Americans and Caucasian-Americans. Univariate ANOVAs revealed three Collectivism items on which Caucasian-Americans scored significantly higher than Asian-Americans. These three scale items are: “*The well-being of my co-workers is important to me*”, “*If a relative were in financial difficulty, I would help within my means*”, and “*To me, pleasure is spending time with others.*” All three of these scale items were Horizontal Collectivism item. Among these 16 Collectivism items, Asian-Americans only reported significantly higher scores than Caucasian-Americans on two scale items: “*We should keep our aging parents with us at home*” and “*Children should be taught to place duty before pleasure.*” These two items belonged to the Vertical Collectivism subscale.

*Adding Covariates for Comparing Collectivism.* The last step in examining the ethnic group differences on Collectivism scores was to include age and university location as covariates in the ANOVA. These two variables were chosen to be covariates because they were both significantly correlated with ethnicity (age: -.25, university location: -.35) and Collectivism (age: -.16, university location: -.12). After controlling for age and university location, Asian-Americans (M=98.77) had a slightly higher Collectivism score than Caucasian-American (M=98.06), however the difference was still not statistically significant,  $F(1,629) = .34, p = .56$ .

## Chapter 5

### Discussion

#### *Research Questions*

The main purpose of this study was to explore the construct of perfectionism in relationship to collectivism. Consistent with the first hypothesis, Asian/Asian-American participants reported significantly higher Personal Discrepancy and Family Discrepancy scores than Caucasian-American participants. Past studies indicated that Asian or Asian-American samples had significantly higher scores than Caucasian-American samples on the APS-R Discrepancy subscale (Wang, et al., 2005, in press), the FMPS Parental Criticism subscale (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002), and the three domains of Discrepancy measured by Higgins's (1987) theory of self-discrepancy (Hardin & Leong, 2005). The lack of significant group differences on the APS-R and APS-F High Standards scores between Asian-Americans and Caucasian-Americans, is also consistent with past findings (Castro & Rice, 2003; Chang, 1998; Kawamura et al., 2002). This may suggest that Asian-Americans are more self-critical than Caucasian-Americans, while not having higher standards. Similarly, Asian Americans view their families as being less satisfied with their performances, despite not perceiving higher family standards. One explanation is that in the Asian culture it is more common and acceptable to view yourself as not being good enough, which is in line with the highly valued virtue of modesty in this culture (Kim et al., 1999). Another explanation may relate to the common use of shaming as a method used by Asian parents to socialize their children. As mentioned earlier, the shaming process focuses on discrepancies that exist between the behaviors the parents expect of the child and the child's actual behaviors. This focus on discrepancies possibly explains why Asian-Americans scored higher on both Personal and

Family Discrepancy. The high Personal Discrepancy may be a result of internalizing Family Discrepancy.

However, a highly related question is whether this higher level of self-reported Discrepancy has the same relationship with negative mental health issues among Asian-Americans as it has with Caucasian-Americans. The intercorrelations of Personal Discrepancy with Depression (AA:  $r=.56$ ; CA:  $r=.47$ ) and Self-Esteem (AA:  $r=-.63$ ; CA:  $r=-.62$ ) were similar for Asian-Americans and Caucasian-Americans. The intercorrelations were similar for Family Discrepancy as well. Family Discrepancy correlated with Depression (AA:  $r=.38$ ; CA:  $r=.41$ ) and Self-Esteem (AA:  $r=-.43$ ; CA:  $r=-.47$ ).

Hypothesis 5 predicted that the correlations between High Standards and Discrepancy, for both scales, would be higher for Asian-Americans than for Caucasian-Americans. This hypothesis was partially supported. The correlations between Personal High Standards and Personal Discrepancy were not statistically significant at the  $p < .001$  level for either the Asian-American ( $r=.15$ ) or the Caucasian-American ( $r=.07$ ) group. This was different from past studies with Chinese college students, where there were higher correlations, ranging from .29 to .37, between these two variables (Wang, 2007, in press). However, the correlation between Family High Standards and Family Discrepancy was significant at the  $p < .001$  level for the Asian-American group ( $r=.25$ ) but not for the Caucasian-American group ( $r=.13$ ), which supported the hypothesis. This hypothesis was based on past studies in combination with the possibility that Personal Discrepancy would be higher for Asians than Americans. However, the hypothesis was only supported with the Family High Standards and Discrepancy subscales.

The correlation between High Standards and Discrepancy looks at whether one's discrepancy level is related to one's standards. It also relates to the question of whether there is a

mediating variable between High Standards and Discrepancy scores, such as actual performance. In other words, is the level of discrepancy dependent on one's actual or perceived performance against one's standards? If so, how much do these two dimensions reflect the construct of perfectionism from a western perspective? Based on the results of this study, does Family Discrepancy, therefore, reflect less of a disposition to perceive one's family as regarding anything short of perfection as unacceptable but instead a subjective view of how one has performed against one's perceived family standards? The results indicate that for Asian-Americans, Family Discrepancy is not only associated with lower Self-Esteem and higher Depression, but also related to one's perceived Family High Standards.

Path analyses were conducted to test whether: 1) Family Discrepancy was a stronger predictor of Depression and Self-Esteem for the Asian/Asian-American sample than for the Caucasian-American sample; 2) Personal Discrepancy was a weaker predictor of Depression and Self-Esteem for the Asian/Asian-American sample than for the Caucasian-American sample; and 3) Family High Standards was a stronger predictor of Personal High Standards for the Asian/Asian-American sample than the Caucasian-American sample. None of these hypotheses was supported. In fact, results of a multiple-group path analysis indicated the opposite of what was expected. When path coefficients were allowed to be different between ethnic groups, the path coefficient from Family Discrepancy to Depression was not statistically different for the Caucasian-American group (.10) and the Asian-American group (.04). Similarly, the comparison of path coefficients from Personal Discrepancy to Depression for the Asian-American group (.20) and the Caucasian-American group (.03) was not consistent with the hypothesis. In terms of the path from Family Discrepancy to Personal Discrepancy, the result was also different from my expectation. The path coefficient for the Asian-American group (.57)

was lower than the path coefficient for the Caucasian-American group (.63). My hypotheses were not supported; the results did not indicate significant differences in the direction that I expected.

### *Collectivism*

The hypotheses of ethnic group differences on path coefficients were based on the underlying assumption that Asian-Americans would have higher Collectivism scores, indicating higher collectivistic values, than their Caucasian-American counterparts. Based on this unexpected lack of differences, I compared the two ethnic groups on their Collectivism scores to examine possible reasons that hypotheses 2, 3, and 4 were not supported. In contrast to my initial expectations, Caucasian-Americans reported a higher Collectivism mean score than Asian-Americans, although the difference was not significant. To further examine potential reasons why Asian-Americans did not report higher degrees of collectivistic values, I separated Asian-Americans by their generational status to examine whether acculturation level was an influencing factor. No statistically significant differences were found across the different Asian-American generational groups. Therefore, I questioned whether age or school location were moderating variables. However, after controlling for these two variables, Asian-Americans still did not have significantly higher Collectivism scores than Caucasian-Americans. This led to two additional questions. First, is it possible that the Individualism-Collectivism Scale (Triandis, 1995) does not adequately measure ethnic and cultural differences? Second, is it possible that Asian-Americans are not that distinct from Caucasian-Americans in their collectivistic values? In other words, is the widely held assumption that “Asian-Americans are more collectivistic” a largely untested assumption?

A review of past collectivism studies using meta-analyses by Oyserman, Coon, and Kimmelmeier (2002) supported the notion that Caucasian-Americans are less collectivistic than Asian-Americans. They analyzed 31 studies that compared Asian-Americans with Caucasian-Americans and calculated a mean weighted effect size of  $-.39$ . Twenty-nine of these studies used students as participants and yielded an effect size of  $-.40$ . This raised the question of why Asian-Americans did not report higher Collectivism scores in this study. One explanation could be due to the INDCOL scale used in this study, since Oyserman et al.'s (2002) meta-analyses included studies that used various collectivism scales. The authors did not specify how frequently the Triandis' Individualism-Collectivism Scale was used.

In terms of studies that compared different ethnic groups using Triandis' Individual-Collectivism Scale, results varied but overall Asian-Americans had higher Collectivism scores than Caucasian-Americans. In Gelfand and Realo's (1999) study, Asian-American ( $N=36$ ) university students reported higher overall collectivism scores (combined Horizontal and Vertical Collectivism) than Caucasian-American ( $N=66$ ),  $F(1,48)=11.15$ ,  $p<.001$  (Mean-AA = 7.0; Mean-CA = 6.4). More specifically, overall Asian groups have scored higher than Caucasians on the Vertical Collectivism subscale, but not on the Horizontal Collectivism subscale (Singelis et al., 1995; Snider & Styles, 2005). However, in the current study Asian-Americans did not have higher scores on either of the Collectivism subscales.

A possible explanation is that there have been changes in overall collectivistic values among Asians and Americans since Oyserman et al. conducted his review. This could be due to the rapid growth of global communications, especially via the media and internet. Finally, the present results could also be data specific and may only apply to the sampling of this particular study.

It seems worth mentioning that Oyserman et al. (2002) also analyzed cross-national studies and found interesting differences among East Asian countries. Among East Asians, only Chinese showed large effect sizes, i.e. they were more collectivistic. Japanese and Koreans were no more collectivistic than Americans (Oyserman et al., 2002). Asian-Americans are a diverse group. Even though this study focused on East Asian-Americans, it included Chinese, Japanese, and Korean descents of various generational statuses along with Asian international students who do not identify as being American. Therefore, certain characteristics and differences may be overlooked when diverse subgroups are collapsed in studies like this.

After failing to find ethnic group differences with path analyses, I examined how Collectivism levels impacted the model. In hypothesis 7, Collectivism was expected to be a moderator in the relationships of Family Discrepancy with Depression, Self-Esteem, and Personal Discrepancy. The relationships between Family Discrepancy and these three dependent variables were expected to be stronger for participants with higher Collectivism scores than those with lower Collectivism scores. However, this hypothesis was not supported. Family Discrepancy was no more strongly correlated with Personal Discrepancy, Depression, and Self-Esteem for the high-Collectivism group than the low-Collectivism group. This result implied that having higher collectivistic-values did not increase the impact of Family Discrepancy on Personal Discrepancy, Depression, and Self-Esteem. This highlights a possible distinction between Triandis's (1995) definition of collectivism versus the impact of one's family standards and evaluations.

After reviewing the content of the INDCOL items, there seem to be some differences between the collectivism that is measured by INDCOL and the concept of how important family standards and evaluations are valued by participants in this study. Triandis's Horizontal

Collectivism refers to people's interdependence and merging with their in-groups. His Vertical Collectivism adds a hierarchical aspect and refers to people's submission to authorities and willingness to sacrifice their own goals to meet the expectations or goals of their in-groups. On the item level, five out of the eight Vertical Collectivism items mentioned family or parents. They emphasized sacrificing one's desires and pleasure or consulting with family members to meet the family's needs. As for the Horizontal Collectivism scale, only one out of the eight items mentioned family or parents. Most items referred to others in general, neighbors, or colleagues. Therefore, the level of Triandis's collectivism may not overlap too much with how one values meeting family expectations.

In summary, the best explanation of the findings seems to be that Asian-Americans are not as different from Caucasian-Americans as expected. Regardless of whether the INDCOL scale was able to detect the ethnic group differences on collectivism, there were still no significant group differences on the path model, indicating that Asian-Americans are not more impacted by family perfectionism than Caucasian-Americans. However, it was also interesting and surprising that there were no differences between different collectivism-level groups on the correlations of Family Discrepancy with Personal Discrepancy, Depression, and Self-Esteem. This supports the notion that collectivism measured by Triandis' collectivism scales may be different from valuing family expectations, assuming that the APS-F accurately measures Family Discrepancy. Moreover, Triandis' collectivism seems broader and incorporates other collectivistic aspects including relationships with groups, coworkers, and neighbors and the notion of sacrificing one's goals for the goals of one's in-group. In other words, Triandis' collectivism incorporated the desire to meet family expectations, but this aspect may only be reflected by a small proportion of the Collectivism scores.

Hypothesis 6 expected both Personal and Family High Standards to be positive predictors of Self-Esteem, but was only partially supported in this study. For both samples, only the path coefficient from Personal High Standards to Self-Esteem was significant. The path coefficient from Family High Standards to Self-Esteem was not statistically significant. This pattern indicates that one's self-esteem is more related to the high standards that he or she sets and less related to one's perceived family standards. One possible explanation is that the standard people set for themselves may be closely related to their self-evaluations. In other words, if they have high self-esteem or think highly of themselves, they may tend to set higher standards. However, people who have higher self-esteem may not necessarily perceive their family as having high standards for them. Since this relationship is correlational rather than causal, we can also look at the results the other way around. People may perceive their family as having high expectations for them, regardless of how highly they think about themselves. In addition, perceiving that one's family has high expectations does not enhance one's view of self.

#### *Other Findings*

It is also worth noting that Asian-Americans reported significantly lower Self-Esteem scores than Caucasian-Americans in this study. An interesting question is whether their lower Self-Esteem is related to the higher levels of Family and Personal Discrepancy. In other words, are Asian-Americans more prone to having lower self-esteem because of their tendencies to be less satisfied and to perceive their family as less satisfied with their performances? If so, would lowering discrepancies increase their self-esteem. However, with Asian-Americans being ethnic minorities in the U.S., external and internalized racism are other factors that may impact their self-esteem. A group comparison on the RSES items, revealed an interesting pattern. There were six out of ten items on which these two groups differed significantly at the .05 level.

Asian-Americans scored significantly higher on all of the 5 reversed RSES items, those that were negatively related to high self-esteem. However, Asian-Americans scored significantly lower on only one out of the five positively phrased RSES items. It may also be that Asian-American participants responded to the RSES with the same deference used in responding to the APS-R Discrepancy and Family Discrepancy subscales; both scales measure maladaptive mental health aspects. Even though Asian-Americans reported lower Self-Esteem scores, they did not differ significantly on Depression with their Caucasian-American counterparts. These could be interesting topics to further explore.

### *Limitations*

It is worth noting that this study has several limitations. Despite the careful research design and data collection process, there was an imbalanced sample composition. First, there was an imbalance between the sexes of the participants. Male participants were less than 20% of all participants for both the Asian-American (19%) and the Caucasian-American (18%) groups. Second, participants from various regions within the U.S. participated in this online survey. The majority (74%) of Asian-American participants were from universities located in the Western region of the U.S., while the majority of Caucasian-American participants were from universities located in the Northeast Region of the U.S. Third, there was a group difference on age and academic year. The mean age for Asian-Americans was older than the mean age for Caucasian-Americans. In addition, approximately 20% of the Asian-American participants were graduate students, while the Caucasian-American participants were almost exclusively undergraduate students. Finally, even with narrowing Asian-American participants to only East Asian descendants, the sample still included both Asians and Asian-Americans of various generational statuses.

There are also a few research-design-related limitations. First, this study used a correlational design. Whether depression and self-esteem are causes or the results of discrepancy and high standards cannot be concluded from this study. Second, the APS-F was based on reports of perceived family standards and discrepancy rather than actual standards and discrepancy. In addition, the term family is broad and may include fathers, mothers, grandparents, siblings, and extended family members. Therefore, participants' ratings may vary depending on whom they had in mind while responding to the items.

#### *Future Directions*

The results of this study raise many questions. It was surprising that there were no differences on collectivism. Additional research on this topic is clearly warranted. In addition, since the APS-F is a newly developed scale, further examination of its construct validity seems important. Future directions may include studying its relationships with perceived family expectations and family criticism. Concurrent measures that may be worth using include, Hewitt and Flett's (1991) Multidimensional Perfectionism Scale and Wang and Heppner's (2002) Living up to Parental Expectancy Inventory. In addition, comparing one's perceived family expectations and discrepancy with actual reports from family members may shed light on the accuracy of participants' predictions. This may also provide a better comparison between the impact of perceived family discrepancy (reported by participants) and the impact of actual family discrepancy (reported by family members).

Since most of the hypotheses of this study were based on past studies with Asian students, examining and comparing Asians with Asian-Americans may provide a better understanding of the results of this study. It may be easily assumed that Asian-Americans have similar values with Asians, however, this may not be the case. Many Asian-Americans may have stronger

American values than Asian values and identify with individualism as much as their Caucasian-American counterparts.

Clustering participants into different Family Perfectionism groups using the APS-F is also another area for future studies. It may be interesting to see if people can be grouped into adaptive and maladaptive groups based on how they perceive their family's perfectionistic expectations and judgments of them. For example, would people who perceive their parents as having high standards but approve their performance report better mental health? Similarly, would people who perceive their families as being more critical also report poorer mental health? This direction of study, in combination with parent-report-measures, might provide a better understanding of how parental expectations, acceptance, and criticism are related to one's development of personal perfectionism.

It seems important to further explore cultural differences on collectivism and individualism using various scales and methods. It is important to not dichotomize ethnic groups on this dimension based on stereotypes. It will also be interesting to continue studying Asian-Americans' general well-being by including measures of self-esteem, depression and others such as anxiety, satisfaction with life, acculturation, cultural values, generational conflict, bicultural stress, etc. Finally, it will also be important to further explore why Asian-Americans have higher Personal and Family Discrepancy as well as how this Discrepancy relates to their lower Self-Esteem scores. This may provide a better understanding of how various factors affect Asian-Americans' mental health and the role discrepancy plays.

### *Conclusions*

The main hypotheses of this study were not supported. However, there are some interesting findings and contributions. First, results of this study provide additional support for

the APS-R scales, especially among Asian-Americans. Second, the APS-Family scale appeared to be a measure with appropriate psychometric properties for both Caucasian-Americans and Asian-Americans. Third, the results provided strong support for Asian-Americans reported higher Personal and Family Discrepancy levels than Caucasian-Americans, which is consistent with past studies. Fourth, the results questioned the notion of whether Asian-Americans are really more collectivistic than Caucasian-Americans or whether Triandis' (1995) Individualism-Collectivism Scale is valid. Finally, there seems to be a pattern of Asian-Americans reporting higher scores on items/scales that describe maladaptive aspects of mental health. This study raises many questions that can be productively explored in future research.

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## Appendix A

### Recruitment Scripts

#### Classes

My name is Kenneth Wang. I am a doctoral student in Counseling Psychology at Penn State University and a psychology intern at the Counseling Center of University of Southern California. You are invited to participate in a psychology research study online titled “Family Expectations, Personality, and Mental Health among College Students.” You will be provided with extra credit for your class by participating in the study, which is \_\_ extra credit points. Participation is voluntary and you may also choose to \_\_\_\_\_ as an alternative way to receive the same amount of extra credit. It will take about 15-20 minutes to complete the questions.

You must be 18 years of age or older to take part in this research study.

You can ask questions about the research. Kenneth T. Wang, a Ph.D. student at Penn State, is conducting this research and can be reached at (626) 399-6629 or [ktwang@psu.edu](mailto:ktwang@psu.edu). His advisor is Dr. Robert Slaney and can be reached at (814) 863-4594 or [rslaney@psu.edu](mailto:rslaney@psu.edu).

The website address to access the research study is [www.psychdata.com](http://www.psychdata.com).

#### Emails for Asians / Asian-Americans

My name is Kenneth Wang. I am a doctoral student in Counseling Psychology at Penn State University and a psychology intern at the Counseling Center of University of Southern California. I am conducting a dissertation study on how family expectations and personality influences mental health among East Asian and Asian-American college students. The online survey will take approximately 15-20 minutes of your time. At the end of the survey, you can enter your email into a drawing for \$25 gift cards, one for every 50 participants.

Your participation in this research project is voluntary and you may withdraw from the study at any time. You can access the survey by clicking on the following link: <https://www.psychdata.com/s.asp?SID=120540> or go to <http://psychdata.com/> and enter survey #120540

If you have any questions concerning this research study, please do not hesitate to contact me or my advisor Dr. Robert B. Slaney. Whatever your decision about participating, I thank you very much for considering this invitation. I plan to send a reminder e-mail in two weeks. Your comments or questions regarding this study are encouraged and welcomed.

Thank you in advance for participating in my study. Please feel free to forward this email to anyone over the age of 18 you feel would be interested in participating as well.

### Emails for General Participants

My name is Kenneth Wang. I am a doctoral student in Counseling Psychology at Penn State University and a psychology intern at the Counseling Center of University of Southern California. I am conducting a dissertation study on how family expectations and personality influences mental health among college students. The online survey will take approximately 15-20 minutes of your time. At the end of the survey, you can enter your email into a drawing for \$25 gift cards, one for every 50 participants.

Your participation in this research project is voluntary and you may withdraw from the study at any time. You can access the survey by clicking on the following link: <https://www.psychdata.com/s.asp?SID=120540> or go to <http://psychdata.com/> and enter survey #120540.

If you have any questions concerning this research study, please do not hesitate to contact me or my advisor Dr. Robert B. Slaney. Whatever your decision about participating, I thank you very much for considering this invitation. I plan to send a reminder e-mail in two weeks. Your comments or questions regarding this study are encouraged and welcomed.

Thank you in advance for participating in my study. Please feel free to forward this email to anyone over the age of 18 you feel would be interested in participating as well.

### Reminder Emails

My name is Kenneth Wang, a doctoral student in Counseling Psychology at Penn State University and a psychology intern at the Counseling Center of University of Southern California.

Two weeks ago, I sent out an email invitation to participate in my dissertation study on how family expectations and personality influences mental health among college students. This online survey will take approximately 15-20 minutes of your time. This is a reminder for those who are interested, but haven't had the chance to complete the survey. You can access the survey by clicking on the following link: <https://www.psychdata.com/s.asp?SID=120540> or go to <http://psychdata.com/> and enter survey #120540

Thank you in advance for participating in my study. Please feel free to forward this email to anyone over the age of 18 you feel would be interested in participating as well.



## Appendix C

### Informed Consent (Penn State-classes)

#### Informed Consent - PSU (extra credit)

##### Informed Consent Form for Social Science Research The Pennsylvania State University

**Title of Project:** Personality, Family Expectations, and Mental Health among College Students

**Principal Investigator:** Kenneth T. Wang, Doctoral student

150 Monterey Rd #1

South Pasadena, CA 91030

(626) 399-6629; [ktwang@psu.edu](mailto:ktwang@psu.edu)

**Advisor:** Robert B. Slaney, Ph.D.

327 CEDAR Building, Penn State University

University Park, PA 16802

(814) 863-4594; [rslaney@psu.edu](mailto:rslaney@psu.edu)

- 1. Purpose of the study:** The purpose of the study is to understand the personality and family factors that influence college students' mental health.
- 2. Procedures to be followed:** You will be asked to answer an online survey. The online survey includes questions about some demographics and your thoughts, attitudes, and behaviors.
- 3. Benefits:** Your participation will help researchers and mental health clinicians increase knowledge about factors that influence college students' mental health. The study also may help mental health clinicians provide better services for college students.
- 4. Duration:** It will take about 15-20 minutes to complete the questions.
- 5. Statement of Confidentiality:** You will be asked to provide your name and student id for extra credit. However, no personal identities will be linked with your survey responses. The data will be kept in the principal investigator's personal computer at home. Your confidentiality will be kept to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.
- 6. Right to ask questions:** You may ask questions about the research study. Kenneth Wang, a Ph.D. student at Penn State and a psychology intern at USC, is conducting this research and can be reached at (626) 399-6629 or [ktwang@psu.edu](mailto:ktwang@psu.edu). His advisor is Dr. Robert B. Slaney and can be reached at (814) 863-4594 or [rslaney@psu.edu](mailto:rslaney@psu.edu).
- 7. Compensation:** You will receive course credit for participating as specified in the syllabus provided by your instructor. Alternative means for earning this course credit are available as specified in the syllabus.
- 8. Voluntary Participation:** Your participation is strictly voluntary. You may withdraw from the study at any time. If you decide to withdraw, do not submit your answers. However, lack of submission of your responses will make you ineligible for receiving extra course credit unless you complete the alternate mean of earning the extra course credit. You may choose not to answer certain questions. Completion and submission of the survey implies your consent to participate in this research. You must be 18 years of age or older to take part in this research study. If you have read and understand the above statements, please click on the "Continue to Next Page" button below to indicate your consent to participate in this study.

**We recommend that you either print out or copy and paste this page and keep it for your own records.**

Please click on "Submit"

Submit

## Appendix D

### Informed Consent (Penn State-general)

**Informed Consent - PSU general**  
**Informed Consent Form for Social Science Research**  
**The Pennsylvania State University**

**Title of Project:**

Personality, Family Expectations, and Mental Health among College Students

**Principal Investigator:**

Kenneth T. Wang, Doctoral student  
 150 Monterey Rd #1  
 South Pasadena, CA91030  
 (626) 399-6629; [ktwang@psu.edu](mailto:ktwang@psu.edu)

**Advisor:**

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 327 CEDAR Building, Penn State University  
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- 1. Purpose of the study:** The purpose of the study is to understand the personality and family factors that influence college students' mental health.
  - 2. Procedures to be followed:** You will be asked to answer an online survey. The online survey includes questions about some demographics and your thoughts, attitudes, and behaviors.
  - 3. Benefits:** Your participation will help researchers and mental health clinicians increase knowledge about factors that influence college students' mental health. The study also may help mental health clinicians provide better services for college students.
  - 4. Duration:** It will take about 15-20 minutes to complete the questions.
  - 5. Statement of Confidentiality:** You will be asked to provide your email for the drawings. However, no personal identities will be linked with your survey responses. The data will be kept in the principal investigator's personal computer at home. Your confidentiality will be kept to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet by any third parties.
  - 6. Right to ask questions:** You may ask questions about the research study. Kenneth Wang, a Ph.D. student at PennState and a psychology intern at USC, is conducting this research and can be reached at (626) 399-6629 or [ktwang@psu.edu](mailto:ktwang@psu.edu). His advisor is Dr. Robert B. Slaney and can be reached at (814) 863-4594 or [rslaney@psu.edu](mailto:rslaney@psu.edu).
  - 7. Compensation:** There will be a drawing of \$25 gift cards, one for every 50 participants. Once you have completed the survey, you will be directed to another website to provide your email. However, there is no linkage between your email and your responses to this study. Your email will only be used to contact you about the results of the drawing.
  - 8. Voluntary Participation:** Your participation is strictly voluntary. You may withdraw from the study at any time. If you decide to withdraw, do not submit your answers.
- You may choose not to answer certain questions. Completion and submission of the survey implies your consent to participate in this research.
- You must be 18 years of age or older to take part in this research study. If you have read and understand the above statements, please click on the "Continue to Next Page" button below to indicate your consent to participate in this study.

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Please click on "Submit"

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## Appendix E

### Information Sheet (USC)

#### Info Sheet - USC

**University of Southern California**  
**Student Counseling Services, University Park Health Center**  
 Information Sheet for Non-medical Research

#### **Personality, Family Expectations, and Mental Health among College Students**

You are asked to participate in a research study conducted by Kenneth T. Wang, M.A., Robert B. Slaney, Ph.D., and Lawrence Neinstein, M.D. from the University Park Health Center at the University of Southern California. Results of this study will contribute to Kenneth Wang's dissertation. You were selected as a possible participant in this study because of your university student status. You must be at least 18 years of age to participate. Approximately a total of 400 university students will be selected to participate. Your participation is voluntary. **Completion and submission of the survey implies your consent to participate in this research.**

#### **PURPOSE OF THE STUDY**

The purpose of the study is to understand the personality and family factors that influence college students' mental health.

#### **PROCEDURES**

You will be asked to answer an online survey. The online survey includes questions about some demographics and your thoughts, attitudes, and behaviors. It will take about 15-20 minutes to complete the questions.

#### **POTENTIAL RISKS AND DISCOMFORTS**

There are no anticipated risks in participating in this research beyond those experienced in everyday life. However, questions in this survey are personal in nature and might cause emotional discomfort. If you feel some discomfort while answering particular questions, you may skip these questions.

#### **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

You may not directly benefit from your participation. It is hoped that your participation will help researchers and mental health clinicians increase knowledge about factors that influence college students' mental health. The study also may help mental health clinicians provide better services for college students.

#### **PAYMENT/COMPENSATION FOR PARTICIPATION**

If you were recruited as part of a class, you will be provided with extra credit for your class. Once you have completed the survey, you will be directed to another website to provide your name and student id. However, there is no linkage between your student id and your responses to this study. Your student id will be provided to your instructor indicating that you have participated in this study for extra course credit. You can also earn equivalent extra credit through completion of an assignment comparable in time and effort to participating in the study. Please refer to your instructor's decision regarding the amount of extra credit and the alternative assignment.

If you are not participating for course credit you may participate in a drawing of \$25 gift cards, one for every 50 participants. Once you have completed the survey, you will be directed to another website to provide your email. However, there is no linkage between your email and your responses to this study. Your email will only be used to contact you about the results of the drawing.

#### **CONFIDENTIALITY**

The study is anonymous since your identifying information will not be linked with your survey responses. Only members of the research team will have access to the data associated with this study. Identifiers will be destroyed once the compensation has been given to participants. The data will be stored in the investigator's protected computer. The data will be stored for seven years after the study has been completed and then destroyed.

#### **PARTICIPATION AND WITHDRAWAL**

Your participation is strictly voluntary. You may withdraw from the study at any time without penalty. Please answer each question to the best of your ability. You may also refuse to answer any questions you don't want to answer and still remain in the study. Omitting questions will not disqualify your eligibility for extra credits or participating in the drawing.

#### **RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact the University Park IRB, Office of the Vice Provost for Research Advancement, Grace Ford Salvatori Hall, Room 306, Los Angeles, CA 90089-1695, (213) 821-5272 or upirb@usc.edu.

**IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact:

**Principal Investigator:**

Kenneth T. Wang, M.A.  
USC Student Counseling Services  
Los Angeles, CA 90089-0051  
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**USC Faculty Advisor:**

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Please click on "Submit"

Submit

**Appendix F****Demographic Questionnaire**

- 1) Age: \_\_\_\_\_
- 2) Sex:            M            F
- 3) Marital status:
  1. Single
  2. Married
  3. Separated
  4. Widowed
  5. Other
- 4) Ethnicity/Race:
  1. African American / Black American
  2. Asian American
  3. Caucasian / White
  4. Latina / Latino American
  5. Native American
  6. Bi-racial
  7. Other
- 5) Were you born in the U.S.?            Yes            No  
If "No" Country of birth: \_\_\_\_\_
- 6) Number of years living in the U.S.: \_\_\_\_\_
- 7) Generation status (immigration background):
  1. Non-American (not a U.S. permanent resident or citizen)
  2. First (foreign-born immigrants)
  3. Second (US-born, parents immigrated)
  4. Third
  5. Fourth and beyond
- 8) National origin: \_\_\_\_\_
- 9) Select what best describes the community you grew up in:
  1. Predominantly White
  2. Predominantly African-American/Black
  3. Predominantly Asian
  4. Predominantly Hispanic
  5. Ethnically mixed
  6. Other
- 10) Location of your current university/college:

1. Northeast
2. South
3. Midwest
4. West

11) Select what best describes your campus community:

1. Predominantly White
2. Predominantly African-American/Black
3. Predominantly Asian
4. Predominantly Hispanic
5. Ethnically mixed
6. Other

12) Please indicate your semester standing:

1. Freshman
2. Sophomore
3. Junior
4. Senior
5. Undergraduate – other
6. Graduate

13) Academic major:

1. Agricultural sciences
2. Arts & Architecture
3. Business
4. Communications
5. Earth & Mineral Sciences
6. Education
7. Engineering
8. Health & Human Development
9. Information Sciences and Technology
10. Liberal Arts
11. Science
12. Other

14) Father's education level:

1. Elementary School
2. Middle School
3. High School
4. College
5. Graduate School

15) Mother's education level:

1. Elementary School
2. Middle School
3. High School

4. College
5. Graduate School

16) Your father's expectations of your performance in general are:

1. Very Low
2. Low
3. Average
4. High
5. Very High

17) Your mother's expectations of your performance in general are:

1. Very Low
2. Low
3. Average
4. High
5. Very High

18) Please indicate your Grade Point Average: \_\_\_\_\_

## Appendix G

### Almost Perfect Scale - Revised (APS-R; Slaney, Mobley, Trippi, Ashby, & Johnson, 1996)

Directions: The following items are designed to measure attitudes people have toward themselves and their parents. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

Respond to each of the items using the scale below to describe your degree of agreement with each item.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Slightly Disagree
- 4 = Neutral
- 5 = Slightly Agree
- 6 = Agree
- 7 = Strongly Agree

1. I have high standards for my performance at work or at school.
2. I am an orderly person.
3. I often feel frustrated because I can't meet my goals.
4. Neatness is important to me.
5. If you don't expect much out of yourself, you will never succeed.
6. My best just never seems to be good enough for me.
7. I think things should be put away in their place.
8. I have high expectations for myself.
9. I rarely live up to my high standards.
10. I like to always be organized and disciplined.
11. Doing my best never seems to be enough.
12. I set very high standards for myself.
13. I am never satisfied with my accomplishments.
14. I expect the best from myself.
15. I often worry about not measuring up to my own expectations.
16. My performance rarely measures up to my standards.
17. I am not satisfied even when I know I have done my best.
18. I try to do my best at everything I do.
19. I am seldom able to meet my own high standards of performance.
20. I am hardly ever satisfied with my performance.
21. I hardly ever feel that what I've done is good enough.
22. I have a strong need to strive for excellence.
23. I often feel disappointment after completing a task because I know I could have done better.

## Appendix H

### The Almost Perfect Scale-Family (APS-F; Methikalam, Slaney, & Wang, 2005)

Directions: The following items are designed to measure your perceptions of the attitudes, beliefs, and values your family has and conveyed to you. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

Respond to each of the items using the scale below to describe your degree of agreement with each item.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Slightly Disagree
- 4 = Neutral
- 5 = Slightly Agree
- 6 = Agree
- 7 = Strongly Agree

1. My family has high standards for my performance at work or at school.
2. My family believes that if I can't be the best, I should not even try.
3. My family expects me to admit I'm a perfectionist.
4. My family expects me to be an orderly person.
5. I often feel frustrated because I can't meet the goals my family has for me.
6. Neatness is important to my family.
7. My family believes, if you don't expect much out of yourself, you will never succeed.
8. My best just never seems to be good enough for my family.
9. My family thinks things should be put away in their place.
10. My family has high expectations for me.
11. My family expects me to have trouble when I leave things incomplete.
12. I rarely live up to my family's high standards.
13. My family expects me to always be organized and disciplined.
14. My family believes that it is easier to do something yourself than it is to get someone else to do it.
15. Doing my best never seems to be enough for my family.
16. It bothers my family when I am distracted when I have work to do.
17. My family sets very high standards for me.
18. Nothing short of perfect is acceptable in my family.
19. My family is never satisfied with my accomplishments.
20. My family likes me to be very careful and precise when measuring things.
21. My family expects the best from me.
22. I often worry about not measuring up to my family's expectations.
23. My performance rarely measures up to my family's standards.
24. I can generally meet the standards my family sets for me.

25. My family is not satisfied even when they know I have done my best.
26. My family expects me to try to do my best at everything I do.
27. I am seldom able to meet my family's high standards of performance.
28. My family likes it when I make a list of tasks I have to do and then check them off as I do them.
29. My family is hardly ever satisfied with my performance.
30. My family can get pretty upset when I don't do as well as they think I should.
31. My family hardly ever feels that what I've done is good enough.
32. When I don't meet my family's standards, it doesn't bother me.
33. My family thinks that people should do their best or don't bother.
34. According to my family, if I don't perform well, I don't let it get me down.
35. I am aware that my family sets standards that are unrealistically high.
36. My family usually feels pretty satisfied with what I do.
37. My family expects me to have a strong need to strive for excellence.
38. My family usually feels like what I have done is good enough.
39. My family often feels disappointment after I complete a task because they know I could have done better.

## Appendix I

### The Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977)

Using the scale below, circle the number which best describes how often you felt or behaved this way -- DURING THE PAST WEEK.

- 0 = Rarely or none of the time (less than 1 day)
- 1 = Some or a little of the time (1-2 days)
- 2 = Occasionally or a moderate amount of time (3-4 days)
- 3 = Most or all of the time (5-7 days)

1. I was bothered by things that usually don't bother me
2. I did not feel like eating; my appetite was poor
3. I felt that I could not shake off the blues even with help from my family or friends
4. I felt that I was just as good as other people
5. I had trouble keeping my mind on what I was doing
6. I felt depressed
7. I felt that everything I did was an effort
8. I felt hopeful about the future
9. I thought my life had been a failure
10. I felt fearful
11. My sleep was restless
12. I was happy
13. I talked less than usual
14. I felt lonely
15. People were unfriendly
16. I enjoyed life
17. I had crying spells
18. I felt sad
19. I felt that people disliked me
20. I could not get "going"

## Appendix J

### The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965)

Directions: Respond to each of the items using the scale below to describe your degree of agreement with each item.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Agree
- 4 = Strongly Agree

1. I feel that I am a person with worth, at least on an equal plane with others.
2. I feel that I have a number of good qualities.
3. All in all, I am inclined to feel that I am a failure.
4. I am able to do things as well as most other people.
5. I feel I do not have much to be proud of.
6. I take a positive attitude toward myself.
7. On the whole, I am satisfied with myself.
8. I wish I could have more respect for myself.
9. I certainly feel useless at times.
10. At times I think I am no good at all.

## Appendix K

### The Individualism-Collectivism Scale (INDCOL; Triandis, 1995)

Directions: There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

Respond to each of the items using the scale below to describe your degree of agreement with each item.

- 1 = Strongly Disagree
- 2 =
- 3 =
- 4 =
- 5 =
- 6 =
- 7 =
- 8 =
- 9 = Strongly Agree

1. My happiness depends very much on the happiness of those around me.
2. I would do what would please my family, even if I detested that activity.
3. I usually sacrifice my self-interest for the benefit of my group.
4. It is important for me to maintain harmony within my group.
5. I like sharing little things with my neighbors.
6. We should keep our aging parents with us at home.
7. The well-being of my co-workers is important to me.
8. If a relative were in financial difficulty, I would help within my means.
9. Children should feel honored if their parents receive a distinguished award.
10. If a co-worker gets a prize I would feel proud.
11. To me, pleasure is spending time with others.
12. I would sacrifice an activity that I enjoy very much if my family did not approve of it.
13. Children should be taught to place duty before pleasure.
14. I feel good when I cooperate with others.
15. I hate to disagree with others in my group.
16. Before taking a major trip, I consult with most members of my family and many friends.

## VITA

### KENNETH T. WANG

ktwang@uiuc.edu  
www.kennethwang.com

#### **EDUCATION**

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**The Pennsylvania State University, University Park, PA**  
Ph.D. Candidate in Counseling Psychology Dec 2007  
Minor: Educational Psychology (Focus Area: Measurement/Statistics)

**Wheaton College, Wheaton, IL**  
M.A. in Clinical Psychology May 2001

**National Chiao-Tung University, Hsinchu, Taiwan**  
B.S.M. in Management Science June 1995

#### **RESEARCH PUBLICATIONS**

---

**Wang, K. T.**, Yuen, M., & Slaney, R. B. (in press). Perfectionism, Depression, Loneliness, and Life Satisfaction: A Study of High School Students in Hong Kong. *The Counseling Psychologist*.

**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 motivation. *Personality and Individual Differences*, 42, 1279-1290.

Slaney, R. B., Pincus, A. L., Uliaszek, A. A., & **Wang, K. T.** (2006). Conceptions of perfectionism and interpersonal problems: Evaluating groups using the structural summary method for circumplex data. *Assessment*, 13, 138-153.

#### **COUNSELING EMPLOYMENT**

---

**Clinical Counselor** Aug 2007 – present  
*Counseling Center, University of Illinois at Urbana-Champaign*

**Pre-doctoral Psychology Intern** Aug 2006 – July 2007  
*Student Counseling Services, University of Southern California*

**Counselor** Aug 2001 – June 2002  
*National Dong-Hwa University, Hualien, Taiwan*

#### **OTHER EMPLOYMENT**

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**Project Engineer** Sep 1997 – Sep 1998  
*Philips Electronics Industries, Taiwan*

**Sergeant** Oct 1995 – Aug 1997  
*Military Service, Taiwan Army*

#### **DISSERTATION GRANTS**

---

**AAPA Dissertation Research Grant** – Asian American Psychological Association 2007

**Alumni Society Research Initiation Grant** – College of Education, Penn State Univ. 2006