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**PERCEIVED PARENTAL EXPECTATIONS AMONG CHINESE AMERICAN  
COLLEGE STUDENTS: THE ROLE OF PERCEIVED DISCREPANCY AND  
CULTURE IN PSYCHOLOGICAL DISTRESS**

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by

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## ABSTRACT

This study was the first attempt to systematically examine the direct and indirect effects of perceived parental expectations, perceived discrepancy in parental expectations and students' performance, cultural context, and cultural values on psychological distress among Chinese American undergraduate students. The direct impact of perceived discrepancy on the relationship between parental expectations and psychological distress as well as the indirect impact of cultural context and cultural values on psychological distress via perceived expectations discrepancy were the foci of this study. The concept of cognitive appraisal (evaluation of a transaction between the person and the environment; Lazarus & Folkman, 1984) was the basis for viewing perceived expectations discrepancy as cognitive appraisal, which determines the stressful nature of a series of transactions between the person and the environment.

The role of culture was critical in this study, as one's beliefs and values are thought to have an impact on the cognitive appraisal process (Lazarus & Folkman). Two models with and without cultural context and cultural values as indirect predictors of psychological distress via the perceived discrepancy were hypothesized.

Structural equation modeling was used to test models predicting psychological distress with a sample of 203 Chinese American undergraduate students. Due to the poor factor loadings of cultural context indicators onto the cultural context variable, the structural model that included the cultural context variable was not tested. However, bivariate correlations indicated that generational status predicts level of perceived discrepancy as well as parental expectations.

Results suggested that a structural model including perceived discrepancy, perceived parental expectations, and cultural values as predictors of psychological distress fit the data adequately. Whereas parental expectations was a significant predictor of psychological distress in bivariate correlations, such significance was reduced to none in the presence of perceived discrepancy in SEM analysis. Thus, the role of perceived discrepancy as a mediator between parental expectations and psychological distress was supported. Cultural values were found to have a significant indirect effect on psychological distress via perceived discrepancy. Given the importance of meeting familial expectations within Asian cultures in general, the results indicated the need for students' cultural values to be considered in predicting their level of perceived discrepancy as well as psychological distress. Limitations of this study and implications for research and practice are discussed.

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## **Chapter 1**

### **Introduction**

In April 2000, Elizabeth Shin, a second-generation Korean American student at M.I.T. burned herself to death in her dorm room. Her suicide drew national attention after her parents sued M.I.T. for failing to inform them of their daughter's dangerous psychological status prior to suicide. As the trial progressed, M.I.T. lawyers questioned whether Elizabeth felt pressured by her parents to date Asian men and to perform well in school (Healy, 2002). The lawyers further asked Elizabeth's friends about "parental stresses" that may be "unique to Asian students," and whether her parents expected her to earn all A's. The parents accused M.I.T. of "ethnic stereotyping," questioning whether M.I.T. believes that "Asian Americans harm their children by placing too great an emphasis on studies" (Healy, ¶1).

This case exemplifies critical points relevant to cross-cultural psychology in the area of mental health. A commonly held view is that Asian parents hold high expectations and put tremendous pressures on their children for academic achievement. Another commonly held view is that parental pressures incur a psychological cost on their children's mental health. For example, current media link "the unprecedented pressure to excel" to the increasing use of mental health services and suicide among college students (Giegerich, 2003).

Corsini (1999) defined pressure as "excessive or stressful demands made on an individual," giving an example of parental pressures for achievement (p. 753). Thus, when students perceive the demands (e.g., high expectation) from their parents as excessive, they feel the pressure to achieve. On the other hand, Frost, Marten, Lahart, and

Rosenblate (1990) defined parental expectations as a “tendency to believe that one’s parents set very high goals and are overly critical” (p. 453). Perceiving high parental expectations itself may not necessarily be perceived as pressure but when students perceive such expectations as excessive or stressful, it becomes a pressure for them. In this study, parental expectations is chosen as a variable in order to explicate the process of how students’ perceived parental expectations comes to influence their mental health. However, literature on both parental expectations and pressure is reviewed as the constructs are intertwined in nature.

Multicultural theorists and educators have expressed concerns over the possible psychological costs of academic achievement expectations and pressure placed on Asian American students (e.g., Pang, 1991; Sue & Zane, 1985; Toupin & Son, 1991). The literature on parental achievement pressure provides a more complicated picture than a simple linear relationship between parental achievement pressure and its psychological cost on Asian American students. What is consistent with the commonly held view noted above is that Asian and Asian American students do perceive more parental pressures and expectations than students of European descent or other non-Asian ethnicities (Aldwin & Greenberger, 1987; Chang, 1998; Chung & Walkey, 1989; Chung, Walkey, & Bemak, 1997; Crystal et al., 1994; Peng & Wright, 1994).

A review of the literature, however, indicates mixed findings on the impact of parental pressures or expectations on mental health of Asian American students. Several cross-cultural studies have found that parental pressure or expectation is not a better predictor of psychological distress for Asian than for American students in general (Crystal et al., 1994) or specifically for Caucasian American students (Chang, 1998).

Some studies reported significant correlations between parental pressures for achievement and psychological distress. Tomiki (2001) found a positive significant correlation between anxiety and depression and parental pressures in Asian Americans. In a study conducted by Crystal et al., parental pressures were significantly correlated with somatic complaints and academic anxiety in Japanese and somatic complaints and depressed mood in Chinese students. On the other hand, no significant relationships were reported between achievement pressure or expectation and depression and/or anxiety for Korean American students (Aldwin & Greenberger, 1987), or for Taiwanese students (Wang, 1997).

An important dimension that has emerged from the literature review is the perceived discrepancy between parental expectations and students' self-performance (Wang, 1997) and discrepancy between parents and students' standards (Aldwin & Greenberger, 1987). Both discrepancies (parents and students) were found to be more significant predictors of depression than parental pressures or expectations alone. Given the importance of meeting family/parents' expectations in a traditional Asian family, such a discrepancy or feeling of not meeting parental expectations may be more stressful than the expectations or pressures themselves.

The concept of cognitive appraisal proposed by Lazarus and Folkman (1984) may shed some light on the role of expectation discrepancy as a possible mediator between parental expectations and psychological stress. Lazarus and Folkman defined stress as "a particular relationship between the person, and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). Thus, parental expectations may not directly predict psychological distress but

rather how one evaluates and makes sense of such expectations (cognitive appraisal) may have a more direct impact on distress.

Lazarus and Folkman (1984) emphasized the importance of considering cognitive appraisal in a cultural context, as one's cognition is influenced by values and beliefs. One of the cultural variables that may affect an individual's cognitive appraisal in experiencing high parental expectations for achievement is the cultural values endorsed by students. Not meeting parental expectations (i.e., disparity) may lead to more distress for those individuals who adhere to traditional values than those who do not. Furthermore, traditional Asian beliefs emphasize the self as malleable and stresses the importance of effort and hard work (Heine, Kitayama, Lehman, Takata et al., 2001). Such belief may further exacerbate students' distress when they believe that their performance does not meet their parents' expectations.

On the other hand, some researchers have reasoned that cultural context may explain why parental expectations have not been found to be significant predictors of maladjustment among Asians or Asian Americans as much as among Caucasian Americans despite the greater perceived expectations among the Asian sample (Chang, 1998; Chang & Rand, 2000). Chang, and Chang and Rand suggested that Asian students may be socialized to accept parental pressures and attempt to meet their parents' high expectations. Thus, the experience of trying to meet parental expectations is more normalized for Asian Americans than for Caucasian Americans.

At the same time, Asian American students come from diverse community backgrounds, ranging from Asian-specific communities (e.g., Chinatown in New York) to predominantly White communities. In addition, the current cultural context such as

access to the same ethnic community or resources may affect the normalization experience. For example, sharing and validating experiences with friends from the same ethnicity is one of the ways Asian American college students learn to cope with parental pressures (Liu, 1997/1998). Coping mechanisms, such as having experiences validated by same-ethnic friends, may not be readily available for some. Along with students' adherence to cultural values, cultural context seems to influence their experiences with parental achievement expectations. As a result, these variables need to be systematically examined.

One of the biggest challenges of studying ethnic groups such as Asian Americans is the vast heterogeneity within each ethnic group. According to Uba (1994), there are more than 25 subgroups of Asian heritage in the United States and these groups have distinct differences. Continuous immigration from Southeast, South Asia, and East Asian countries contributes to diversity among Asian Americans on multiple dimensions such as language, generational status, and acculturation to mainstream American values (Okazaki & Hall, 2002). For example, there are huge gaps between different subgroups in their economic achievement. According to the 2000 U.S. Census Bureau, while Asian Indian and Japanese families' median incomes were more than \$10,000 higher than that of all Asian families, Cambodian, Hmong, Korean, Laotian, Pakistani, Thai, and Vietnamese median family incomes were substantially lower than the median for all Asian families. Cultural values also vary among different subgroups. For example, although cultural values of Chinese, Japanese, and Korean Americans are largely influenced by Buddhism and Confucian philosophy, the influence of Christianity in South Korea may contribute to differences in cultural values (Kim, Yang, Atkinson, Wolfe, &

Hong, 2001). When all these different groups are collapsed into one ethnic group, it not only masks the unique characteristics of each ethnic subgroup but also risks the generalizability of research findings.

In this study, I have chosen to focus on Chinese Americans in order to reduce the variability among the sample. According to the 2000 U.S. Census figures, Chinese Americans were found to be the largest Asian population in the U.S. with more than 2.4 million people. Chinese Americans make up 23.8 % of the Asian American population. Thus, Chinese American seems to be an appropriate subgroup to focus.

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

The present study is a replication and extension of extant research that has examined the relationships among perceived parental expectations, perceived discrepancy in parental expectations and students' performance, cultural context, cultural values, and psychological distress. In this study, direct and indirect effects of the parental expectations for achievement, discrepancy, cultural context, and cultural values on psychological distress were examined in a sample of Chinese American undergraduate students. The following mediator models were proposed: (a) perceived expectations discrepancy will have a direct influence on the relationship between parental expectations and psychological distress; (b) cultural context will have an indirect influence on psychological distress via perceived expectations discrepancy; and (c) adherence to Asian values will have an indirect influence on psychological distress via perceived expectations discrepancy.



## Chapter 2

### Literature Review

In this chapter, several sets of literature are reviewed to formulate a conceptual model of the influence of perceived parental expectations on psychological distress in Chinese American college students. In this conceptual model, perceived discrepancy in parental expectations and students' performance is proposed to mediate the relationship between parental expectations and psychological distress. Furthermore, cultural context and cultural values are proposed to have indirect influence on the relationship between perceived discrepancy and psychological distress.

First, the literature on parental achievement pressures and expectations among Asian American students is reviewed. The literature pertaining to Asian students in Asia, most of whom are Taiwanese, Japanese, and Koreans, is also included to supplement the areas in which the literature on Asian Americans is scant (e.g., perceived discrepancy). The foci of the review include sources of achievement pressures, forms of parental pressures and expectations, cross-cultural comparison of frequency of parental expectations and pressures, and empirical studies on the effects of parental pressures and expectations as well as discrepancies in parental expectations on the well-being of Asian and Asian American students.

Second, Lazarus and Folkman's (1984) cognitive appraisal model in the stress process is reviewed to explain the role of perceived expectation discrepancy in relation to parental expectations and stress. Third, I will also discuss cultural variables that are considered to influence cognitive appraisal. Specifically, the topics of values enculturation (i.e., students' level of adherence to Asian values) and cultural contexts

(e.g., the type of community students are raised in) are discussed. In addition, contextual information on Chinese Americans that is relevant to the present study is reviewed, as the sample consists of Chinese American students. Pertinent information such as immigration history of Chinese Americans, cultural values, and diversity among Chinese Americans are noted. Finally, the study's research questions and proposed hypotheses are introduced.

### Parental Expectations and Pressures for Academic Achievement

#### *Asian American and Academic Achievement*

Multiple factors are involved in the high academic expectations often experienced by Asian American college students. The most common explanation for academic achievement in Asian American students is that the expectations stem from their cultural values that emphasize high regard for scholarship and the importance of education among Asian American families (Hirschman & Wong, 1986; Sue & Morishima, 1982). Cultural values and beliefs rooted in Confucianism, such as the importance of education, filial piety, and respect for authority are often said to contribute to Asian family values that emphasize academic success (e.g., Sue & Zane, 1985; Yee, 1992). Academic achievement and upward mobility are viewed as part of the Asian children's obligation to the family (Shen & Mo, 1991). In Asian cultures, shame and loss of face are frequently used to reinforce familial and cultural obligations, societal expectations, and proper behavior (Yeh & Huang, 1996). Thus, the fear of losing face can be a powerful motivating force for Asian Americans to conform to family expectations (Ho, 1989). Chinese parents, for example, view their children as an investment, as children's success brings a sense of honor and pride to the family (Shen, 2002). Thus, achievement is

viewed as a reflection of the family and the pressure to succeed is associated with a desire to avoid failure and loss of face to the family or loss of face of the family to the community (Tomiki, 2001).

Furthermore, a strong emphasis is placed upon effort in Asian cultures. There is a belief influenced by Confucianism that any achievement can be attained with effort and diligence (Chen & Uttal, 1988; Leung, 1996). Thus, high expectations placed on children by parents are considered to facilitate children living up to their highest potential.

The concept of relative functionalism, proposed by Sue and Okazaki (1990), is another factor that is considered to contribute to the high educational achievement by some Asian American groups. Despite 150 years plus of immigration history and existence in the United States, Asian Americans continue to be viewed as foreigners (e.g., the perception that they do not speak English very well) in mainstream U.S. society. Sue and Okazaki contended that the educational attainments of Asian Americans are highly influenced by the opportunities present for upward mobility, not only in educational areas but also in noneducational areas such as entertainment, sports, and politics. Thus to the extent that mobility is limited in noneducational avenues, education becomes increasingly salient as a means of survival and upward mobility.

One factor that may reinforce relative functionalism among Asian Americans is the struggle of their immigrant parents to achieve in America. Their immigration experience may have served to confirm the belief that education is the only way to succeed in the American society. Because higher education is perceived as one of the few avenues to upward mobility and career opportunities, the significance that families attribute to academic success may be intensified (Gloria & Ho, 2003). High expectations

for success are communicated through parents' sacrificing for their children's education (e.g., sacrificing financially to hire tutors for children) and infusing their dreams in their children (e.g., sending children to Ivy League colleges; Liu, 1997/1998).

A factor that is rarely discussed in the literature on Asian Americans' educational achievement is the American cultural value of pursuing excellence. The difference between Americans' pursuit of excellence and the Asian academic expectation is that American students are expected to excel in multiple areas, including sports, dating, volunteer activities, and academics (Crystal et al., 1994). In fact, college administrators at elite colleges have expressed concerns about first year students who arrive on campuses burned out after a high school experience packed with test preparation classes, internships, after school activities, and at the same time to be just one of many "perfect children" (Sontag, 2002). Sontag described such American dominant culture as a "culture of ambition." For example, Elizabeth Shin came from an upper-middle-class suburb where many parents believe in giving their children every opportunity to excel (Sontag). Because Asian American students live in the dual context of Asian and American cultures, they may be driven by dual forces of pressures, one from the American dominant culture and the one from Asian cultures.

In sum, the scholarly literature highlights that multiple sources may explain the high parental expectations Asian Americans experience to excel academically. Contrary to common beliefs, traditional Asian values are not the only factors that contribute to parental expectations in Asian American children. Societal factors such as the minority status of Asian Americans and America's values of ambition also seem to be behind high parental expectations for achievement.

*Students' Experiences of Parental Expectations and Pressures*

Parental pressures and expectations for achievement are communicated in an overt and covert manner, increasing the difficulty in delineating the two constructs. Due to the intertwined nature of parental pressures and expectations for academic achievement, both are reviewed in this section. In addition, as the purpose of the present study is to examine college students' perception of parental expectations and pressures rather than parents' perception, only the literature on students' perceptions is reviewed.

The core features of parental expectations (e.g., very high goals set by parents) defined by Frost et al. (1990) are described as essential factors that are associated with parental pressures in studies by Liu (1997/1998) and Chung and Walkey (1989). In Liu's qualitative study, second-generation Chinese-American undergraduates ( $N = 30$ ) identified numerous ways they perceived parental expectations. The most obvious form of parental pressure reported was the verbal pressure from parents. Participants in her study reported education to be the main topic of conversation with their parents, who specifically stressed the importance of getting good grades and getting into prestigious institutions. One of the participants reported that the parent expressed disappointment for the student getting a 3.9 GPA instead of 4.0 and told the student to work harder. The importance of prestige was often communicated. One participant reported that her father refused to pay for any of the Ivy League schools except Harvard.

Liu (1997/1998) reported five strategies used by parents to enhance achievement motivation in their offspring: (a) guilt induction; (b) comparisons; (c) coercion and control; (d) chastisement; and (e) compliments. Guilt was often induced by overt (e.g., "if they [peers who had less ability than the student] get better grades than you, don't you

feel ashamed?") and covert messages. Covert messages were conveyed when parents invested money in academic assistance such as tutors and review courses. A sense of obligation to parents was prevalent among students, which also resulted in increasing the amount of pressure to do well. Although used less once students were in college, direct coercion and control were reported. In the Chinese community, social conversations often revolved around children and their achievements and led to social comparisons, which were used as a way to motivate children to do better. Chastisement was another form of parental achievement pressure. One participant reported being grounded for one month during high school for getting a B. Finally, as opposed to scolding, students reported that parents used compliments to motivate their offspring ("I see you in the board room" "You will be so successful").

Liu's (1997/1998) findings may be limited to the Asian American sub-population of second-generation Chinese American college students who attend a prestigious university in California. However, her study provides valuable information on how students perceive different parental communication and behaviors as pressure or expectations.

Similarly, Chung and Walkey (1989) identified multiple factors that students perceived as parental pressures. These factors included (a) fear of parents' response to failure (e.g., "My parents would make me feel ashamed if I failed in school"), (b) parents' academic aspirations ("my parents expect me to continue my education"), (c) parents' achievement orientation ("My parents expect the highest possible level of academic achievement from me"), and (d) obligation to parents (e.g., "I owe it to my parents to be successful in school"). These factors, although based on college students

(Chinese and European) in New Zealand, shared some commonalities with how parental pressure was perceived by Liu's (1997/1998) Chinese American college students in the U.S.

In summary, the literature indicates the overt and covert ways children of Asian-descent perceive parental pressures and expectations. In addition to the verbal communication of expectations to do well, parents' dissatisfaction or criticism of their child's academic performance seem to be a common form of parental pressures. Whether communicated overtly or covertly, the underlying feature of parental achievement pressures is the imposition of high parental standards on students.

#### *Parental Expectations and Pressures: Cross-Cultural Comparison*

Cross-cultural studies have confirmed that Asian American parents have higher expectations for their children than other ethnic parents. Likewise, Asian American students do perceive parental pressures or expectations more frequently than other ethnic counterparts.

Aldwin and Greenberger (1987) developed a scale measuring achievement pressure from parents and disparity in achievement standards using a matched sample of Korean ( $n = 61$ ) and Caucasian American college students ( $n = 69$ ). For achievement pressure, respondents rated on a 7-point scale the degree of pressure they felt from their parents to achieve good grades (1 = none and 7 = a great deal of pressure). For disparity in achievement standards, respondents were asked to indicate within one decimal point the GPA their parents would consider to reflect doing well in college, and the GPA the students themselves would consider as doing well. Analysis of variance indicated that the Korean students felt significantly more parental pressures than their Caucasian

counterparts. The Korean students also perceived significantly greater disparity between their parents and their own views of a GPA, an indicator of “doing well” in college, than the Caucasian students. Correlational analyses indicated that achievement pressure and disparity in achievement standards were modestly correlated ( $r = .33, p < .01$  for Koreans;  $r = .21, p < .05$  for Caucasians). It is unclear if sex difference existed, as sex of participants was not reported in their analysis.

Similar findings were replicated in studies conducted in New Zealand. Chung and Walkey (1989) examined pressures toward academic achievement in Chinese ( $n = 159$ ) and European secondary students. ( $n = 159$ ) They specifically examined cross-cultural differences in the aspiration attitudes of the students themselves, their perception of their parents' aspiration attitudes, and the relationships between the two sets of attitudes. Analyses of variance showed significant differences between the Chinese and European students for academic aspiration ( $F(1,310) = 18.89, p < .001$ ), achievement ( $F(1,310) = 10.05, p < .01$ ), and a fear of failure ( $F(1,310) = 5.28, p < .05$ ). The Chinese students reported higher scores in these areas than did their European counterparts. Likewise, the Chinese students perceived higher academic expectations and higher achievement orientations from their parents, expressed a greater fear of their parents' response to failure, and reported a greater sense of obligation to their parents than the European students reported. Analyses of variance indicated these differences were significant for parents' academic expectations ( $F(1,310) = 20.16, p < .001$ ), parents' achievement orientation ( $F(1,310) = 7.80, p < .01$ ), fear of parents' response to failure ( $F(1,310) = 11.03, p < .001$ ), and obligation to parents ( $F(1,310) = 11.85, p < .001$ ).



Caution is required in applying these results to Asian American college students, but this study lends empirical support to higher academic aspirations of Chinese students and parents in comparison to European students. This cross-cultural difference may be due to multiple factors, including the influence of Asian values and the perception of limited mobility in the New Zealand society, although these factors were not examined in the study.

Another comparative study conducted by Chung, Walkey, and Bemak (1997) on Chinese and European students in New Zealand provides further insight into the impact of perceived parental expectations on students' achievement as well as educational and occupational aspirations. A total of 311 (108 Chinese; 203 Europeans) high school students who were in their third year and were candidates for School Certificate (SC), were recruited from 25 public high schools in four major cities in New Zealand. Chi-square analysis found no significant difference between Chinese and European students on their SC grades. However, consistent with Chung et al.'s hypothesis, Chinese students had significantly higher educational and occupational aspirations than their European counterparts. Chinese parents (68%) more frequently reported that they were dissatisfied with their children's results than did the European parents (46%). A difference was also found in students' perceptions of their ability. Despite group similarity of grades on SC scores, 51% of Chinese students rated themselves in the two poorest categories of the 7-point scale on the perception of their ability (i.e., extremely dissatisfied and dissatisfied). Only 28% of European students classified themselves in the same categories. The authors concluded that Chinese parents' dissatisfaction with their offspring reinforces their

children's poor self-perception of their ability, although such parental dissatisfaction may have resulted in their children's academic achievement.

As will be reviewed in the next section, perfectionism studies identified similar results. For example, Chang (1998) found that Asian American college students have significantly more concerns about making mistakes, parental expectations, parental criticism, and doubts about their actions than the Caucasian American students did. Similarly, in Castro and Rice's (2003) study, Asian American and African American college students reported significantly higher scores on the parental expectations subscale of the Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) than Caucasian Americans, while Asian Americans reported higher on parental criticism than both African and Caucasian students. The details of these studies will be reviewed in the next section.

Although Liu's (1997/1998) study is not a cross-cultural investigation, her study supports the presence of intracultural differences in Asian Americans' experience of parental pressures. In her qualitative study on second-generation Chinese American undergraduates, an equal number reported experiencing low/absent and high/moderate level of parental pressures. Among 15 students who reported high/moderate parental pressures, 13 students held even higher expectations for themselves than their parents did for them. Twelve students, in particular, reported extreme internal pressures to achieve. Liu also found that both daughters and sons perceived parental expectations equally.

In sum, the empirical studies reviewed support that there are cross-cultural differences in parental pressures and expectations between students of Asian descent and students of other ethnicities. Studies indicate that students of Asian descent feel

significantly more pressures for academic achievement than other ethnic students. A primary theme emerging from this literature review is students' internalization of parental aspiration or dissatisfaction (Chung & Walkey, 1989; Chung et al., 1997; Liu, 1997/1998). In some cases as identified in Liu's study, students' inner drive for achievement exceeded parental pressures.

*Parental Expectations, Expectations Discrepancy, and Psychological Well-Being*

The cost of achievement pressure on Asian American students' academic success may be their mental health (e.g., Sue & Zane, 1985). Perfectionism studies lend some support to the premise that parental expectations are associated with a psychological cost.

Some perfectionism researchers (e.g., Frost, et al., 1990; Hewitt & Flett, 1991) have identified high parental expectations as one of the factors that predict maladaptive perfectionism, which is said to be a predictor of a number of psychological problems such as depression (Castro & Rice, 2003; Hewitt & Dyck, 1986; Hewitt & Flett) and anxiety (Johnson & Slaney, 1996). Thus, how the role of parental expectations on person's psychological functioning is viewed in perfectionism literature would be relevant to the current study.

In this section, the concept of perfectionism is introduced first with a particular focus on parental expectations. Second, studies from perfectionism literature are reviewed with a focus on the role of parental expectations on mental health of Asian American students. Third, studies examining the impact of parental expectations or pressures on Asian and Asian American students' mental health are reviewed. Fourth, the concept of perceived discrepancy between perceived parental expectations and perceived self-performance is introduced as an attempt to understand the mixed findings on the

relationship between parental expectations/pressures and mental health for Asian or Asian American students. The studies that have examined the impact of the perceived expectation discrepancy are reviewed.

Frost et al. (1990) offered a multidimensional definition of perfectionism, which is characterized by (a) high personal standards, (b) high parental expectations, (c) doubts about the effectiveness of one's actions, (d) preference for organization and order, (e) excessive concerns about making mistakes, and (f) parental criticism. Frost et al. and other theorists assert that perfectionists' considerable focus on their parents' and/or significant others' expectations and evaluations of them are the central components of perfectionism (e.g., Burns, 1980; Pacht, 1984; Hewitt & Flett, 1991). Frost et al. suggested that people with perfectionistic tendencies believe that failure to meet their parents' standards means a potential loss of parental love and acceptance. Similarly, Hewitt and Flett conceptualize perfectionism based on intrapersonal aspects such as being critical of themselves (self-oriented perfectionism), and interpersonal aspects such as having unrealistic expectations for significant others (other-oriented perfectionism) as well as believing that significant others have unrealistic expectations of them (socially prescribed perfectionism). Thus, according to Hewitt and Flett's definition, unrealistically high expectations from parents are considered to be socially prescribed perfectionism.

Findings of several perfectionism studies indicate that socially prescribed perfectionism (belief that others expect perfection from him or her) is significantly associated with depressive symptoms (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991). Frost et al. (1990) found that there are significant associations between intensity of symptoms measured by the Brief Symptom Inventory (BSI;

Derogatis & Melisaratos, 1983) and the Parental Expectations subscale of the MPS ( $r = .30, p < .01$ ) as well as the Parental Criticism subscale ( $r = .32, p < .01$ ). Overall, the perfectionism literature suggests that high parental expectations and standards have a negative impact on children's mental health.

Cross-cultural studies on perfectionism, however, indicate the potential role of socialization in the experiences of parental expectations and criticism among Asian American college students. The following summary of such studies support the hypothesis that cross-cultural differences in socialization predict the impact of parental expectations/criticism on children's psychological well-being.

Chang and Rand (2000) argued that individuals from collectivist cultures might actually be at lower risk for maladjustment despite their perfectionist tendencies, if socially prescribed expectations (i.e., an individual believes that others expect perfection from him or her) were to be considered uniform for everyone in the collectivist group. In fact, individuals coming from more collectivistic cultures are more likely to promote and maintain socially prescribed perfectionistic tendencies than those in individualistic cultures (Sue & Okazaki, 1990; Yee, 1992).

Chang (1998) conducted a cross-cultural study with Asian American ( $n = 89$ ) and Caucasian American ( $n = 96$ ) college students at a large North-eastern university on perfectionism, suicidal risk, and social problem solving. Perfectionism was measured by the Multidimensional Perfectionism Scale (MPS; Frost et al., 1990). Suicidal risk was measured by the Beck Hopelessness Scale (HS; Beck, Weissman, Lester, & Trexler, 1974) and the Suicidal Probability Scale (SPS; Cull & Gill, 1982). The result of t-tests indicated that Asian American college students have more concerns about making

mistakes, parental expectations, parental criticism, and doubts about their actions than the Caucasian American students did. Variables most pertinent to this study were parental expectations and parental criticism, as both were ways in which Asian American students perceived parental pressures for achievement.

Concerns about parental criticism were significantly correlated to hopelessness for Caucasian Americans ( $r = .51, p < .001$ ), but there was no significant correlation between these two variables for Asian Americans. Although not significant, correlations between parental expectations and suicidal risk and between parental criticism and suicidal risk were higher for Caucasian Americans ( $r = .35$  and  $.37$ ) than for Asian Americans ( $r = .19$  and  $.18$ ) (Chang, 1998). This cross-cultural difference implies the potential influence of ethnicity. One limitation of this study is that neither generational status nor national origins of Asian American participants were reported in Chang's study. This information would be useful in understanding the potential roles of enculturation and acculturation on the influence of perfectionistic tendencies.

A similar finding about perfectionism was replicated by Castro and Rice (2003) with Asian American, African American, and Caucasian American college students. The authors examined differences in perfectionism scores as well as in the associations between perfectionism, emotional adjustment, and academic achievement across the different ethnic groups. Participants were 59 Asian American, 65 African American, and 65 Caucasian American undergraduate students from two public universities in the north central region of the United States (men = 41, women = 146). The authors used the Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) to measure perfectionism, the Center for Epidemiologic Studies Depression Scale (CES-D Scale;

Radloff, 1977) to measure emotional distress, and Grade Point Average (GPA) to measure academic achievement. MANOVA, subsequent ANOVAs, and post hoc Tukey comparison revealed that scores on the Concern Over Mistakes, Parental Criticism, and Doubts About Actions subscales were significantly higher for Asian Americans than students of other ethnicities ( $F(2, 186) = .7.47$ ,  $F(2, 186) = .10.00$ ,  $F(2, 186) = 4.61$ ,  $p < .05$ ). Both Asian Americans and African Americans scored significantly higher on the Parental Expectations subscale than did Caucasian Americans ( $F(2, 186) = 6.36$ ,  $p < .05$ ).

A correlation analyses found that higher scores on Concern Over Mistakes, Parental Criticism, and Doubts About Actions were significantly and positively correlated with depression for all three ethnic groups with correlation coefficients ranging from .37 to .67 ( $p < .01$ ). There was no significant correlation between Parental Expectations and depression scores. Multiple regression analyses for each ethnic group and for each criterion variable revealed that the MPS subscales accounted for significant variation in CES-D scores for both Asian and Caucasian Americans ( $R^2 = .51$  and  $.29$ ), but not for African Americans. Analysis based on sex was not conducted in this study. The authors suggested that Asian American students may tend to be more wary of making mistakes and have more self-doubts, possibly in response to the high demands placed on them by their parents and increased criticism when those expectations are not fulfilled.

As in Chang's study (1998), these Asian American students reported higher scores in all of the perfectionism dimensions that are typically considered to be maladaptive (e.g., parental expectations, parental criticism) than Caucasian Americans. However, they did not appear to be at increased risk for depressive symptoms. Thus, the

findings of the study provide indirect support for the premise that the role of socialization serves as a buffer for Asian American students from the effects of high parental expectations and criticism.

Along the same line, the studies on perceived parental pressures and expectations and the psychological well-being of Asian American or Asian students have shown mixed results. Tomiki (2001) examined the effect of family environment (e.g., parental pressures for achievement) on achievement motivation and the psychological well-being of Asian American college students. Tomiki surveyed 320 Asian American undergraduates, which included mostly Chinese Americans (60%), Korean Americans (19%) and then other Asians (21%), such as Vietnamese American and Japanese American, who were attending a large, highly selective university in Northern California. Forty-seven percent of the sample described themselves as second-generation (born in the United States of foreign born parents), forty-five percent as first-generation (foreign born), and six percent responded as third generation and beyond (students and parents were born in the United States).

Tomiki (2001) used a single-item to measure parental pressure (“do your parents tell you that you need to work harder no matter how well you do?”). Anxiety, measured by the Taylor Manifest Anxiety Scale (Hicks, Ostle, & Pelligrini, 1980) and depression measured by the Center for Epidemiological Studies – Depression Scale (CES-D; Radloff, 1977) were used to define psychological well-being. Achievement orientation, composed of two perspectives, was measured by questions assessing students’ reasons for engaging in learning. Questions measuring Approach Orientation (e.g., “Doing well in school will bring pride and honor to my family”) and Avoidance Orientation (e.g., “I



engage in schoolwork because failure and poor performance will bring shame to the family”) were developed based on work by Elliot and Church (1997) and Malka (1999).

Correlation analyses revealed that parental pressure to achieve was significantly correlated with the Avoidance orientation of motivation ( $r = .24, p < .01$ ). Contrary to Tomiki’s (2001) hypothesis, parental pressure was also significantly correlated with the Approach orientation of motivation ( $r = .18, p < .01$ ). On the other hand, consistent with her hypothesis, Tomiki found that parental pressures for achievement were significantly and positively correlated with anxiety ( $r = .26, p < .01$ ) and depression ( $r = .14, p < .01$ ), although the effect size for both are less than 10 percent of the shared variance. However, when a regression analysis was conducted to identify the significant predictors of psychological well-being, parental pressure was found to be nonsignificant.

One of the concerns highlighted in Tomiki’s (2001) study is how to measure parental pressure. Measuring parental pressure with a single item may not be reliable. Another limitation of the Tomiki study is the use of a heterogeneous sample of Asian American students (e.g., different national origin, generation status). It is possible that such a sample masks within-cultural differences. For example, students who are first generation may experience more anxiety or depression with high parental pressures than those who are third generation, due to differences in acculturation factors and parents’ country of origin and immigration history.

As reported earlier, Liu (1997/1998) conducted a qualitative study with Chinese-American second-generation undergraduates ( $N = 30$ ) who were attending a highly selective university on the West Coast. She found that these students’ academic and emotional functioning were high despite the experience of long-standing parental

pressures. Liu found that students had a profound sense of their parents' love, while taking into account the pressures placed on them from their parents. Their parents' sacrifices were interpreted by the students to be evidence of parental love. Even one student who described parental abuse expressed filial piety and appreciation for her mother. However, it is difficult to draw conclusions about the well-being of Asian students from Liu's study, as the interviews did not include questions about distress levels or objective measures of well-being. As Liu suggested, there may be limitations posed by the use of the interview format, although such methodology allowed rich information to come out. The students may have given more positive, socially desirable answers and their cultural values may have inhibited them from sharing personal thoughts and feelings with a stranger. Furthermore, the researcher's bias may have influenced data collection and interpretation of the findings.

Of particular interest in Liu's study (1997/1998) is the role of cultural context. The cultural environment of the students may have normalized their experiences in dealing with high achievement pressures. All but one participant was raised in California, and nearly all were from families who were active in a larger ethnic community. A network of mutually supportive Chinese-American and/or Asian-American peers was notable among the participants. Liu also suggested that homogeneity of values and expectations in the larger Chinese community contributed to the students' sense of a normative experience. Their cultural context served not only as a source of support but also as a place for validation of their experiences. One participant's comment speaks to the potential effect of cultural context.

I think we tended to accept it (parental pressures) as part of our life. You don't need to look at it as pressure when it's constantly there. It was when I realized that other kids did not have it (pressure). (Liu, 1997/1998, p.103).

However, the role of cultural context has yet to be tested among less homogeneous groups of Asian American students from different cultural backgrounds (e.g., participation or non-participation in their ethnic community).

A number of cross-cultural studies have shown mixed results regarding the impact of high parental expectations on the psychological well-being of Asian and/or Asian American students. For example, findings from a series of cross-national studies conducted by Crystal et al. (1994) imply that societal context and socialization affect the relationship between parental expectation and their children's mental health. Crystal et al. collected data from 11<sup>th</sup> grade students in Japan ( $n = 1,247$ ), Taiwan ( $n = 1,633$ ), and the United States ( $n = 1,386$ ). The researchers examined psychological maladjustment and its relation to academic achievement, parental expectations, and parental satisfaction. Measures were developed in English, Japanese, and Chinese to assess stress ("how do you feel stressed?"), depression ("how often do you feel depressed?"), aggression, academic anxiety, and somatic complaints. An index of parental satisfaction measured students' perception of the degree to which their parents were satisfied with their offspring's academic performance. A measure of parental expectation assessed the degree to which students believed their parents' expectations for them were too high.

Crystal et al. (1994) performed 3 (location) x 2 (gender) ANOVAs to examine the relationship between location (Japan, Taiwan, the United States), gender, and students' self-reported level of maladjustment, parental expectations, and parental satisfactions. Asian students reported higher levels of parental expectation and lower levels of parental satisfaction concerning academic achievement than their American peers. These differences were significant by location ( $F(2, 3,936-3,977) = 82.21 - 194.56, p < .01$ ). Scheffe contrasts indicated that Chinese students were more likely than Japanese who were more likely than American students to report that their parents' expectations were too high.

Average scores on the five indices of maladjustment were significantly different by location ( $F(2, 3,954-3,977) = 17.60-1771.95, p < .001$ ). However, the  $d$  statistics (standardized effect size) indicated that these differences were small to medium. The authors reported that their findings did not support the general idea that students in Japan and Taiwan report higher psychological maladjustment than American students do. For example, Japanese students reported lower frequency of psychological maladjustment in all five indices than their American counterparts and Chinese counterparts did. In particular,  $d$  statistics indicated that differences in depression and aggression were significantly higher for Americans than for Japanese ( $d = .11, p < .05, d = .23, p < .05$  respectively). Whereas Chinese students reported higher frequencies of stress, depressed mood, and somatic complaints than American students, there were no significant differences. On the other hand, American students reported higher frequencies of academic anxiety and aggression than Chinese students, and the differences were significant ( $d = .11, p < .05, d = .13, p < .01$  respectively).

Crystal et al. (1994) formed high and low groups for each of the measures (parental satisfaction, parental expectations, levels of achievement, and levels of psychological maladjustment) by selecting students whose test or scale scores fall within the top or bottom 15 % of the students in each country. The authors then conducted t-tests to examine the significance of the differences between the two groups.

There were significant differences between low parental expectations group and high parental expectations group in China for the level of four indices of psychological maladjustment. Those who were in high parental expectations group reported significantly higher levels of stress, academic anxiety, aggression, and somatic complaints than those in low parental expectations group. This difference was significant at  $p < .01$ , but no t-score was reported. Among the American sample, the high parental expectations group reported significantly higher frequencies of depressed mood, aggression, and somatic complaints than those in the low parental expectations group. On the other hand, only academic anxiety and somatic complaints seemed to be related to the level of parental expectations among Japanese students. Those in high parental expectations group reported significantly higher frequencies of academic anxiety and somatic complaints than low parental expectations counterparts.

Interestingly, there were significant differences in frequencies of psychological maladjustment between students in low and high academic achievement groups in the American sample, whereas no such differences were seen in Japanese and Chinese samples except that Chinese low achievers had more frequent somatic complaints than high achievers. Among the American sample, the low achievement group reported less stress than the high achievement groups ( $p < .001$ ) but the high achievement group

reported lower frequencies of academic anxiety, aggression, and somatic complaints ( $p < .001$ ). When the authors attempted to discover the sources of stress, the most frequent response in three countries was to describe school experiences. However, more students in the U.S. and in Taiwan reported school as a source of stress than in Japan,  $\chi^2(2, 575) = 84.35$  ( $p < .001$ ). Although a small percentage of students mentioned other sources of stress, the American students reported the highest percentage of describing sports and their jobs as sources of stress (approx. 20% each) among students in three countries.

One of the explanations Crystal et al. (1994) provided for their findings (i.e., despite higher levels of parental expectations and lower level of parental satisfaction seen among Chinese and Japanese students than American counterparts, the level of overall psychological maladjustment among these Asian students is not higher than American students), is that American adolescents experience the abundance of competing interests in their culture. Thus, American students may feel the need to do well in school, but also feel compelled to be good at sports, to date, and to work. On the other hand, doing well in school may be the major developmental task of Chinese and Japanese teenagers; thus, they are less conflicted despite the high demands for academic excellence (Crystal et al.). Crystal et al. suggested that the competition between academic and nonacademic interests may take a toll on American high achievers, as they devote more time to studying than low-achieving peers while valuing out-of-school activities such as sports and dating.

Generalizability of these findings to the college population, especially to Asian Americans, may be difficult. However, an important implication is that societal norms and expectations may have an impact on the relationship between perceived parental expectations and psychological well-being. In the case of Asian Americans, because they

live in multiple cultural contexts (e.g., American dominant culture and Asian culture), the role of their adherence to traditional Asian values as well as the cultural context in which they have grown up may need to be examined. Crystal et al.'s (1994) study also highlights the difficulty in applying studies conducted in different Asian countries to Asian Americans, due to major differences in the cultural contexts of socialization.

On the other hand, disparities between parents' academic standards and students' own (Aldwin & Greenberger, 1987) and between parents' expectation and students' perceived performance (Wang, 1997) have been found to be more significant predictors of psychological distress than achievement pressures or expectations. Aldwin and Greenberger, in their cross-cultural studies of cultural differences in predictors of depression, examined the relative importance of different sources of emotional distress, including perceived stress (e.g., academic problems and achievement pressure), coping strategies, social support, and values. Their sample consisted of mostly first generation Korean American students ( $n = 61$ ) and Caucasian students ( $n = 69$ ), attending a public southern California university.

An 8-item depression subscale was developed. Value systems were measured by the revised scales of the two value systems (traditional and modern) developed by Kim (1980). Aldwin and Greenberger (1987) reworded Kim's scale to make it relevant to both the Korean and Caucasian students in this sample. Students were instructed to indicate how important they thought each of the items was in raising children and how they thought their parents would rate them. Four measures of stress were used to rate the overall number of stressful life events and a rating for the stressfulness of the most troublesome events: (a) stressful life events scale modified by Vaux (1981), (b) academic

problem, (c) achievement pressure, (d) disparity in achievement standards. In addition, coping strategies were measured by an 8-item coping inventory developed by Stone and Neale (1984). Finally, two measures of social support were utilized to assess the amount of parental support and peer support.

Zero-order correlations between measures of stress, coping, social support, values, and depression scores showed that achievement pressure from parents was not significantly correlated with depression for either ethnic group. However, having parents with higher standards for doing well in college than oneself was positively associated with depression ( $r = .27, p < .05$ ) for Korean students, but not for Caucasian students. When stepwise multiple regression analyses were conducted, however, the importance of this disparity in the achievement standard variable became nonsignificant, when other potential predictors were controlled (e.g., parents' traditionalism). Parents' adherence to traditional values was the variable most strongly associated with depression ( $R^2 = .15, F(5, 42) = 8.06, p < .01$ ) in Korean students.

Aldwin and Greenberg's (1987) study suggests a critical, but often ignored role of cultural values in mental health. Most of the Korean sample were first generation (average age of the Korean students when they came to the United States was about 13 years old). These students may have been caught between traditional Asian values espoused by their parents and the dominant American values. Thus, there may be potential differences in prediction of depression by generation.

Disparity in achievement standards between parents and children as a predictor of psychological distress was replicated in Wang's study (1997). Wang developed the Discrepancy of Parental Expectation Inventory (DPEI) to measure the discrepancies



between the Perceived Parental Expectations (PPE) and the Perceived Self-Performance (PSP) in Taiwanese college students. Based on interviews and factor analyses, Wang proposed that the parental expectations construct is multidimensional. She delineated three factors through factor analyses: Academic Achievement, Personal Maturity, and Dating Concerns. The most pertinent to the current study is the Academic Achievement factor. The Academic Achievement factor has 9 items (e.g., Parents expect my academic performance to make them proud; Parents expect me to have excellent academic performance). MANOVAs and ANOVAs found no significant differences by sex on perceived parental expectations, perceived self-expectations, and discrepancy for Academic Achievement. There were moderate correlations between the Academic Achievement factor of PPE and that of DPE ( $r = .67, p < .001$ ).

Wang (1997) examined the construct validity of the DPEI, the PPE, and the PSP by correlating them with a Chinese version of the State-Trait Anxiety Inventory (STAI-C; Spielberger, Gorsuch, & Lushene, 1970; Chien, trans. 1989), the State-Trait Anger Expression Inventory (STAX-C; Spielberger, Jacobs, Russell, & Crane, 1983; Chien trans. 1989), and the Beck Depression Inventory (BDI-C; Beck, 1967; Hwang trans. 1982). There were no significant correlations between the scores of BDI-C, STAI-C, STAX-C and the three factors of PPE (i.e., Academic Achievement, Dating Concerns, and Personal Maturity). However, the Discrepancy scores between the PPE and the PSP for all three factors (i.e., Academic Achievement, Dating Concerns, and Personal Maturity) were significantly and positively correlated with BDI-C scores. Academic Achievement and Personal Maturity of the Discrepancy scores were also significantly correlated with STAI-C scores. Thus, the results indicated that when students

acknowledged higher discrepancy between perceived parental expectation and perceived self-performance on their academic achievement, they reported higher depression and trait anxiety scores.

Because three estimates of emotional distress were moderately correlated with the social desirability scores as measured by the Marlowe-Crowne Social Desirability Scale-Chinese version (MCSDS-C: Crowne & Marlowe, 1960; K. Hwang & K. Young trans. 1972), Wang partialled out social desirability scores. Even after social desirability was removed, DPE factors were still significantly correlated with BDI-C ( $r = .37, p < .001$ ). Perceived Parental Expectation on the Academic Achievement factor was significantly correlated with the STAI-C scores ( $r = .35, p < .001$ ) after social desirability was taken out. Thus, Wang concluded that DPE factors served as better predictors of emotional distress than Parental Expectations.

What is noteworthy is that the Personal Maturity factor (i.e., meet parental expectations through an individual's good manner such as obedience, self-control, and politeness) was associated with depression, anxiety, and anger. Even after social desirability was removed, the Personal Maturity factor was still associated with anxiety and depression. The Personal Maturity factor reflects traditional Chinese values that emphasize good manners and self-discipline (Wang, 1997). Thus, this result implies the role of cultural values in the relationship between meeting parental expectations and psychological maladjustment.

Wang's (1997) research makes a significant contribution to understanding the psychological maladjustment of Taiwanese college students. Her attempt was the first to operationalize parental expectations as a discrepancy-based construct. Based on the

importance of meeting family expectations in Chinese culture, Wang proposed how perceived discrepancy between parental expectations and self-performance has an impact on psychological well-being of Taiwanese students. This result needs to be replicated with Chinese American college students. In applying this to the Chinese American population, it would be important to see how the person's adherence to Asian values would affect the relationship between perceived discrepancy and psychological distress. Studies by Aldwin and Greenberger (1987) and Wang indicate the potential role of perceived discrepancy between parents and students as a mediator between parental pressures for achievement and psychological well-being, but this pattern has not been tested empirically.

#### *Summary and Critique*

This literature review indicates that Asian or Asian American students perceive stronger parental expectations and pressures than Americans or other ethnic Americans, including Caucasians, as supported by a number of cross-cultural studies. Parental pressures seem to be experienced or perceived in numerous ways, not only through verbal communication (e.g., expression of dissatisfaction) but also through parents' emotional/financial investment in their children's academic success. Several studies indicate that children may internalize parental pressures, thereby placing high expectations on themselves (Chung & Walkey, 1989; Chung, Walkey, & Bemak, 1997; Liu, 1997/1998).

On the other hand, contrary to commonly held concerns about the psychological costs of pressures on the mental health of students, findings are mixed for Asian and Asian Americans. For example, no significant correlation was found for Taiwanese

students between parental expectations and psychological distress (Wang, 1997). Several studies showed a significant, positive correlation but later found parental pressures to be less or non-significant with the use of multiple regression analysis (Aldwin & Greenberger, 1987; Tomiki, 2001). Even when there was a positive correlation between psychological maladjustment and parental expectation by national origin (Japan, Taiwan, the US), overall level of maladjustment of Asian students was lower than their American counterparts (Crystal et al., 1994). Liu's (1997/1998) study with second-generation Chinese American undergraduates highlighted the adaptive coping of students despite strong pressures from their parents. Thus, the literature indicates that there may be factors that may intervene the relationship between psychological distress and parental expectations.

Cross-cultural studies on perfectionism found similar findings with regard to parental expectation and criticism. There was no significant correlation between parental criticism and hopelessness among Asian American students in Chang's (1998) study. Chang also found that positive correlation between parental criticism/expectation and suicidal risk was higher for Caucasian American than Asian American undergraduates, despite the higher scores in parental expectations and criticism in Asian Americans. Similarly, the cross-cultural study by Castro and Rice (2003) revealed that Asian American students reported higher parental criticism, concern over mistakes, and doubts about actions than Caucasian American and African American students and higher parental expectation than Caucasian Americans. They, however, found significant and positive correlations between concern over mistakes, parental criticism, and doubts about actions and depression scores.

A significant relationship was found between perceived discrepancy in student-parent expectations and psychological distress (Aldwin & Greenberger, 1987; Wang, 1997). Perceived parental expectation was not a crucial factor by itself, which points to the role of cognitive appraisal in the experience of parental pressures for achievement. As Lazarus and Folkman (1984) proposed, a situation becomes stressful when one's evaluation of the situation exceeds personal resources. Thus, a perceived discrepancy may have a partial mediating effect in a relationship between perceived parental expectation and psychological distress. However, this mediation mechanism needs to be further examined empirically.

The literature reviewed poses several challenges in studying the effect of perceived parental expectations on psychological well-being in Asian American students. First, some studies have used a single-item scale to measure parental pressures (e.g., Aldwin & Greenberger, 1987; Tomiki, 2001). It is unlikely that a single item measure taps into the diverse dimensions of parental pressures experienced by students.

Second, studies have mainly used depression and/or anxiety to measure psychological well-being (Tomiki, 2001) as well as psychological health (Aldwin & Greenberger, 1987) and emotional adjustment (Castro & Rice, 2003). However, for Asian Americans, physical health is an important indicator of mental health because Asians have been found to somatize their psychological problems (Lee, 1996; Yee & Hennessy, 1982). For example, many Chinese Americans tend to have a pattern of depression associated with somatic functioning (e.g., Chang, 1985; Marsella et al., 1973). In fact, somatic complaints were significantly correlated with parental expectations for students

in Taiwan and Japan, although the Taiwanese reported a higher frequency of somatic complaints than their American and Japanese counterparts (Crystal et al., 1994).

Third, the population of Asian Americans is diverse, with vast differences in immigration history, original national culture, just to name a few. For example, while many of the Chinese and Japanese Americans who live in California tend to have an immigration history dating back as far as the 19<sup>th</sup> century, Korean immigrants to California are relatively new (Aldwin & Greenberger, 1987). Differences in generational status and national origin may affect the way students perceive and cope with parental pressures for achievement. However, it is often not realistic to examine each sub-category of Asian Americans by national origin due to the difficulty of obtaining an adequate sample size. Thus, generational status may be a better variable to examine within-culture differences than national origin. Both national origin and generation status at least should be reported in studies, however, to provide a context in interpreting the results.

At the same time, the literature review indicates the role of culture, particularly cultural values and context, as potential factors that may contribute to differential effects of parental expectations and pressures on students' psychological well-being. For example, in Aldwin and Greenberger's (1987) study, both the Korean American parents' traditionalism and their children's modernism were significantly associated with depression. Similarly, as Chang (1998), Chang and Rand (2000), and Crystal et al. (1994) suggested, socialization and normalization experienced by Asian children in their experiences of parental pressures may facilitate adaptive coping. For example, being able to share their experiences with peers of the same ethnicity seems to facilitate accepting parental pressures as an expression of love (Liu, 1997/1998). Unlike students in Asia,

Asian American students come from diverse community backgrounds (e.g., predominantly White neighborhood vs. ethnic neighborhood) and their campus environments may also vary. Thus, cultural context needs to be examined as a variable.

Overall, the literature reviewed indicates that further investigation is warranted into variables that may affect the relationship between parental expectations and psychological distress for Asian American college students. Lazarus and Folkman's (1984) theory of cognitive appraisal may provide the framework in understanding the mixed research findings reported. The next section gives an overview of Lazarus and Folkman's approach to stress, and discusses how culture may have a critical role in the experiences of stress.

#### The Role of Appraisal in Experiences of Parental Expectations

##### *Cognitive Appraisal in Stress*

Lazarus and Folkman (1984) proposed a relational definition of stress. Specifically, psychological stress is defined as “a particular relationship between the person, and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, p. 19). According to Lazarus and Folkman, a transaction between the person and the environment becomes stressful only when it is evaluated (cognitive appraisal) by the person as a harm (e.g., damage that has already happened), threat (harm that is anticipated in the future), or challenge (e.g., condition of high demand where emphasis is on overcoming obstacles and growing as an individual) to one's well-being. Threat and challenge are not mutually exclusive (Lazarus & Folkman). A person can have both challenge emotions, such as eagerness and excited feelings, and threat emotions, such as

fear and worry. For example, one can experience challenge emotions as well as threat emotions when one perceives parental pressures. At the same time, one may mostly experience threat emotions, such as fear if he or she perceives parental pressures and expectations as a threat.

Two critical processes are considered to mediate the person-environment relationship: cognitive appraisal and coping (Lazarus & Folkman, 1984). Cognitive appraisal is an evaluative process, which determines the stressful nature of a particular transaction or series of transaction between the person and the environment. Cognitive appraisal also focuses on the meaning or significance that is given to the events and takes place continuously in one's daily lives. Individual and intraindividual differences occur in the appraisal process, because the nature of the relationship between person and environment is in constant change. An environment that is perceived as threatening by one individual may not be perceived as such by another individual. On the other hand, coping is the process through which the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate (Lazarus & Folkman). In the current study, focus is on cognitive appraisal process rather than coping.

#### *Appraisal of Parental Expectations*

In applying Lazarus and Folkman's (1984) theory to the mechanism between parental expectations and psychological distress, parental expectations may be conceived as a stress when students perceive parental expectations to be something that they cannot meet (e.g., threat). Thus, it may be either perception or fear that one is not able to meet the parental expectations that lead to psychological distress, not necessarily the actual



expectation itself. The perception of not meeting expectations can result in a decrease or loss of confidence and support from one's family and Asian community (Yeh & Huang, 1996).

In examining the construct of perfectionism, Hewitt and Flett (1991) argued that the feelings of worthlessness and harsh self-criticism often associated with not measuring up to one's ideal or to the high expectations of others are likely to lead to negative emotional experiences. Failing to meet these expectations may be related to feelings of shame (Hewitt & Flett). Along the same line, Slaney, Rice, Mobley, Trippi, and Ashby (2001) proposed that the perceived discrepancy between individuals' standards and their perceived performance, especially their academic performance, is integral to maladaptive aspects of perfectionism and distress.

Previous literature reviews indicate that the perceived parent-student discrepancy may be a better predictor of psychological distress than perceived parental expectations (Aldwin & Greenberger, 1987; Wang, 1997). Thus, students may perceive high expectations for academic performance from parents but consider that they are meeting their expectations. As a result, the students may not experience any stress associated with parental expectations, as no discrepancy exists between what they believe and what they attribute to their parents. On the other hand, students may feel distressed if they believe that they are unable to meet their parents' expectations. However, the mediating role of perceived discrepancy in perceived parental expectations–stress relationship has yet to be examined.

## Cultural Variables

### *Cultural Context*

Chang and Rand's (2000) contention that pressure for excellence is socially normalized in the Asian culture parallels the person-environment fit model. There is a match between what is endorsed by family and what is endorsed by society for many Asians living in Asia. Due to the racial homogeneity of most Asian societies, an emphasis on self-improvement, self-criticism, and adherence to parents' expectations may work well in these cultures.

There may be a huge gap, however, between what is endorsed by family and what is endorsed by society and school for Asian Americans. Furthermore, Asian American students may vary in their adherence to traditional values, due to factors such as their generational status and the type of childhood community they are raised in. If, for example, an Asian American student who adheres to Asian values grew up and lives in an environment that fosters such values (e.g., Chinese community in New York), he or she may accept high expectation as the norm and utilize such demand for self-improvement. However, if a similar Asian student grew up in a predominantly White environment and currently lives in an environment with limited cultural resources, a student may not view parental expectations as typical parental behaviors. High parental expectation may have a more negative impact on his or her mental health. Thus, cultural context variables, such as same ethnic contact and involvement, need to be examined to understand better the impact of Asian students' perception of parental achievement pressure on their mental health.

### *Adherence to Cultural Values*

Adherence to cultural values is based on the construct of acculturation (adaptation to a new culture), which is composed of the following two aspects: behavioral and value acculturations. The need to distinguish behavioral acculturation and value acculturation is well-documented. Sodowsky and Lai (1997) suggested that implicit aspects of Asian beliefs and religions such as the importance of harmony, moderation, nonconfrontation, concerns about bringing shame to the family, and feelings of guilt when taking care of personal desires may not be subject to change.

Kim, Atkinson, and Yang (1999) developed the Asian Values Scale (AVS) to assess adherence to Asian cultural values and value acculturation. In their validation studies, Kim et al. found that values and behavioral dimensions represent two distinct processes of acculturation and enculturation. Kim et al. defined enculturation as the retention of the cultural norms and traditions of one's indigenous culture, while acculturation refers to the process of one's adaptation to the norm of dominant society.

In examining discriminant validity for the AVS, Kim et al. (1999) conducted a generational analysis. They compared changes in AVS scores across generation with changes in the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987) which is mostly a measure of behavioral acculturation. Kim et al. divided their sample of 291 Asian American students into three generation levels: first generation ( $n = 155$ ), second generation ( $n = 118$ ), and third generation or higher ( $n = 18$ ).

When they performed ANOVA with AVS scores as dependent variables and generational status as an independent variable, there was no significant difference in AVS

scores across generation. On the other hand, ANOVA with SL-ASIA scores as a dependent variable and generational status as an independent variable revealed a significant difference across generation,  $F(2, 288) = 64.53, p = .00$ . Thus, changes in behavioral acculturation (i.e., SL-ASIA scores) from generation to generation were significantly different, whereas changes in values acculturation (i.e., AVS scores) were not. Kim et al. concluded that changes in cultural values measured by the AVS among the first three generations of Asian Americans occurred at a slower rate than the changes in their cultural behaviors measured by the SL-ASIA. Kim et al. highlighted the importance in examining separately cultural values and behavioral dimensions of acculturation and enculturation. Asian American children's adherence to traditional cultural values may have a role in how they perceive parental achievement expectations. Meeting family expectations and not bringing shame are strongly emphasized in Asian cultures. As Wang (1997) suggested, failing to live up to one's expected potential and to be the ideal reflection of the family may result in Asian children's experiencing an increased level of stress.

At the same time, there is an emphasis in Asian cultures on effort, based on the belief that the self is improvable if one works hard. According to Heine, Kitayama, Lehman, Takata et al. (2001), people in East Asian cultures are socialized to attend selectively to negative attributes and aspects of themselves that are seen as improvable (i.e., self-criticism). Thus, when negative, improvable aspects of the self are made salient, individuals feel motivated to work hard to correct them so that they can be a better self, the one that is expected by others from one's in-group. For example, the Japanese view abilities largely as a function of their efforts (Holloway, 1988; Stevenson & Stigler,

1992). Thus, failure is not particularly threatening to their perceived efficacy, nor does success necessarily heighten it. On the other hand, in the US mainstream culture, the self is considered relatively consistent rather than fluid. Receiving a positive evaluation of the self becomes a more central concern than the process of becoming a better self. Heine et al. (2001) suggested that American people may attend selectively to positive aspects of themselves and feel motivated to work on tasks in which they excel.

In essence, cultural values may have an influence on the assumptions and perceptions youth may have about parental expectations to achieve or perform well. Students' actual performance may not actually be linked to their distress level. Their perception of what is expected by their parents and how they live up to such expectations may be a critical aspect in understanding the relationship between their stress and achievement levels. Adherence to cultural values appears to serve both negative and positive functions in Asian students' cognitive appraisal of parental achievement expectations. To date no literature has been found that has examined this relationship. Thus, adherence to values seems to be an important variable in considering the relationship between parental expectations and the psychological distress of Asian American students.

### *Chinese Cultural Context*

As stated in Chapter 1, I decided to focus on Chinese American students in this study due to the considerable diversity among Asian American populations. However, Chinese Americans are not a homogenous group. Diversity of Chinese American populations can be demonstrated by looking at the different dialects spoken, different immigration patterns, and differences in societal and familial values. According to Lee

(1996), there is no single language such as Chinese but there are dialects. For example, Cantonese is most commonly used in Chinatowns and spoken by Chinese from Hong Kong (Lee). While Mandarin is spoken by most Chinese from mainland China and Taiwan, Chinese from Taiwan speak Taiwanese. Shanghainese and Fukien reflect different regions of China.

Diversity within Chinese Americans' immigration patterns reflects different sociopolitical situations in different time periods. The Chinese Americans have been living in the U.S. as early as 1785 (Lee, 1996). However, a large influx of immigrants, mostly peasants from China, was seen in the 19<sup>th</sup> century during the Gold Rush in California (Lee). There have been a number of waves of Chinese immigrants since then. For example, in the past few decades, there has been an influx of Chinese immigrants from China, Hong Kong, Taiwan, and Vietnam (Lee). Whereas immigrants who came between 1965 and 1977 were mostly in working class, the reestablishment of diplomatic relations between the U.S. and China in 1978 contributed to the increase in the numbers of students and professionals who came to the U.S. to study and chose to stay afterwards (Lee). A large number of Chinese emigrated from Hong Kong in 1980s and 1990s, due to their concerns about the 1997 transfer of British sovereignty to China. On the other hand, political tension between Taiwan and mainland China contributed to the influx of Taiwanese to immigrate to the US. In addition, Taiwanese parents' desire to seek higher and better education for their children added impetus to this group of immigrants (Lee).

Another important dimension to consider in the Chinese cultural context is the changing societal and familial values in Chinese immigrants' countries of origin.

Whereas the traditional Chinese family endorses many of the cultural values that were

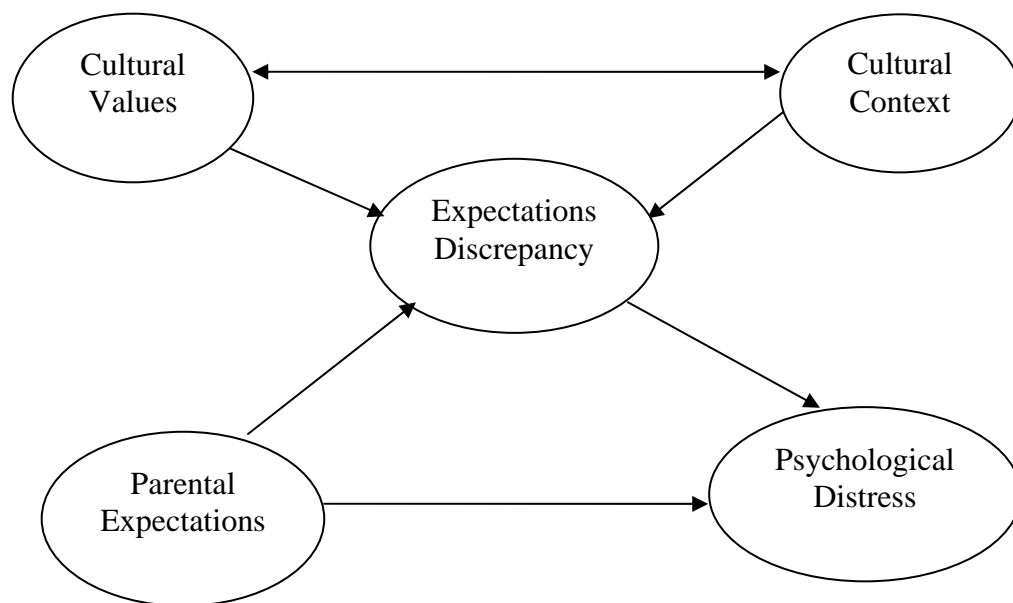
reviewed in this chapter, economic and political changes in countries such as China, Hong Kong, and Taiwan have dramatically changed the family system and values (Lee, 1996). For example, the Communist takeover of China in 1949 led to banning Confucian thought and religions (Lee). It is anticipated that these contextual factors have enormous impact on beliefs and values that Chinese American students learn from their family members. As Lee suggests, those who came from China before the cultural revolution may try to preserve traditional Chinese values by “freezing traditions,” (p. 261) whereas those who immigrated after the cultural revolution or those who immigrated from Hong Kong or Taiwan in recent years may carry different values. These variables would inevitably influence belief systems and values of Chinese American children and grandchildren who are born in the U.S. Thus, Chinese American students’ adherence to traditional cultural values can be influenced not only by their generational status but also by the immigration history of their parents and grandparents generation.

### The Present Study

#### *Research Questions and Hypotheses*

Based on the literature review, I contend that there are a set of variables that predict psychological distress of Chinese American college students. Specifically, the purpose of this study is to propose a model that highlights variables that may affect the relationship between perceived parental expectations and the psychological distress. The criterion variable for this study will be psychological distress. The predictor variables will be perceived parental expectations, perceived discrepancy in parental expectations and students’ performance, adherence to cultural values, and cultural context. Cultural context is operationalized by the ethnic composition of the community students grew up

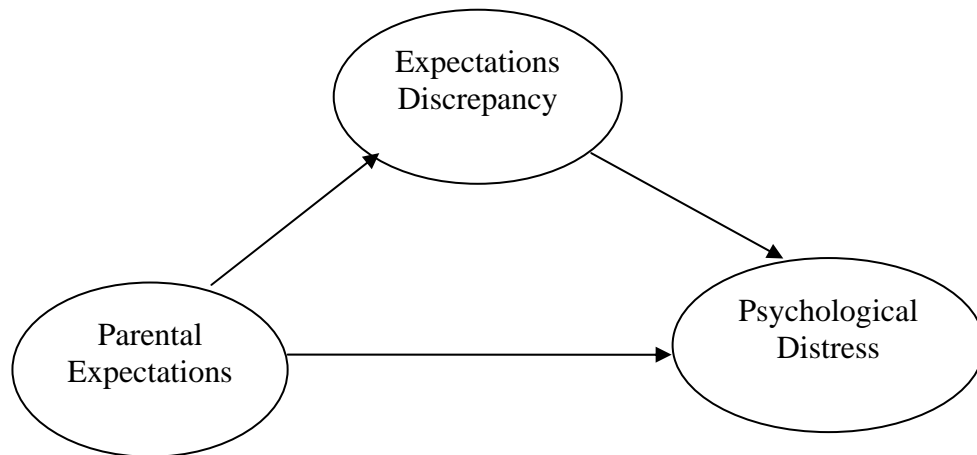
in, ethnic composition of campus community, involvement in same-ethnic organizations, and the number of same-ethnic friends. Figure 1 highlights a conceptual model that illustrates the expected relationships between the predictor and criterion variables. Figure 2 describes an alternative model that is similar to Figure 1, but has no cultural variables (i.e., cultural context and adherence to Asian values) included.



*Figure 1.* Conceptual Model.

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*Figure 2. Alternative Model.*

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This study will attempt to answer the following research questions:

1. Does perceived discrepancy in parental expectations and self- performance mediate the relationship between perceived parental expectations and psychological distress?
2. What roles do cultural values and contexts have in students' perceived discrepancy and their level of psychological distress? Does cultural context have an indirect impact on psychological distress via perceived expectations discrepancy? Does adherence to Asian values have an indirect impact on psychological distress via perceived expectations discrepancy?

Five different hypotheses are offered in relation to these models, four from the first model and one from the alternative model.

Hypothesis 1: The effect of Chinese American students' perceived parental expectations on psychological distress will be mediated by their perceived expectations discrepancy (parental expectations → perceived discrepancy → psychological distress). The higher discrepancy Chinese American students report between perceived parental expectations and self-performance, the more likely perceived parental expectations will be predictive of their level of psychological distress. Perceived parental expectations will be measured by the Parental Expectations subscale of the Multidimensional Perfectionism Scale (MPS; Frost, Marten, Lahart, & Rosenblate, 1990); perceived discrepancy in parental expectations and self-performance will be measured by a modified version of the Discrepancy subscale of the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001); and psychological distress by the Depression Anxiety Stress Scales-Short Form (DASS-21; Lovibond & Lovibond, 1995).

Hypothesis 2: Adherence to Asian values has an indirect effect on psychological distress via perceived discrepancy. (Adherence to Asian values → perceived expectations discrepancy → psychological distress). When Chinese American students report higher adherence to Asian values, students report higher discrepancy between perceived parental expectations and self-performance, and higher psychological distress. Adherence to Asian values will be measured by the AVS, perceived discrepancy in parental expectations and self-performance by a modified version of the Discrepancy subscale of the APS-R, and psychological distress by the DASS-21.

Hypothesis 3: Cultural context has an indirect effect on psychological distress via perceived discrepancy. (Cultural context → perceived expectations discrepancy → psychological distress). When Chinese American students are in higher generational

status (e.g., 4<sup>th</sup> generation), have more friends from the same ethnicity, are from the same or diverse ethnic community, and are involved in same-ethnic organizations, students report lower perceived discrepancy, and less psychological distress. On the other hand, when Chinese American students are in lower generational status (e.g., 1<sup>st</sup> generation), have fewer friends from the same ethnicity, are from predominantly White community, and are involved in less same-ethnic organizations, students report higher perceived discrepancy, and more psychological distress. Cultural context will be measured by type of childhood community, type of campus community, generational status, level of involvement in ethnic groups/organizations, and number of same-ethnic friends; perceived discrepancy in parental expectations and self-performance by a modified version of the Discrepancy subscale of the APS-R; and psychological distress by the DASS-21.

Hypothesis 4: Cultural context and Chinese American students' adherence to Asian values will be correlated. Students' adherence to Asian values will be correlated with students' generational status. When Chinese American students are in lower generational status (e.g., 1<sup>st</sup> generation), have more friends from the same ethnicity, are from the same or diverse ethnic community, and are involved in same-ethnic organizations, students will have higher adherence to Asian values. Cultural context will be measured by type of childhood community, type of campus community, generational status, level of involvement in ethnic groups/organizations, and number of same-ethnic friends; and adherence to Asian values by the AVS.

In the alternative model (see Figure 2), it is hypothesized that culture has no role in the relationship among perceived parental expectations, perceived discrepancy, and

psychological distress. The effect of Chinese American students' perceived parental expectations on psychological distress will be mediated by their perceived expectations discrepancy (parental expectations → perceived discrepancy → psychological distress).

## Chapter 3

### Method

This chapter overviews participant demographics, how participants were recruited, and the procedures for the study. Table 1 displays the sample's demographic characteristics. The proposed measurement model for the study is described. All the measures involved in this study are also described.

#### *Participants*

A total of 228 people participated in this study. Twenty-five (11%) respondents were dropped from the total sample: 11 respondents (5%) were dropped due to being graduate students, having graduated from college, or being a high school student; 14 respondents (6%) were dropped due to leaving significant number of questions blank on the scales. Those who left questions blank in the demographic questionnaire section were included in the analysis. Thus, the total sample consists of 203 male and female undergraduate students of Chinese descent (e.g., Chinese Americans, Taiwanese Americans) who identified themselves as either US citizens or permanent residents of the U.S. The majority of the demographic data are presented in Table 1. Table 2 specifically presents demographic data that are used to operationalize the cultural context variable. Not all demographic variables total 203 because participants sometimes left certain demographic questions blank.

Participants' ages ranged from 18 to 32 ( $M = 19.8$ ,  $SD = 1.62$ ). Seventy-six percent of the sample was female ( $n = 155$ ); 23% of the sample was male ( $n = 47$ ); and one participant did not answer this question (see Table 1). As shown in Table 2, most of the participants identified themselves as first- (57%) and second-generation (38%),

followed by several students in third-, fourth-, and fifth generation (see Table 2). The majority of the sample identified themselves as being of Chinese origin (56%) and of Taiwanese origin (29%), followed by students of biracial, multiracial, or mixed ethnicity (see Table 1). Those who identified themselves as biracial or multiracial were asked to indicate their national origin. These participants indicated diverse racial/ethnic combinations ranging from Japanese-Chinese to Chinese-European. Most of the participants (99%) have never been adopted.

As shown in Table 1, participants were from 23 states, with the majority going to schools in the East Coast or West Coast. The majority of the sample identified as sophomores (32%) and juniors (31%). Most of the participants were single. The majority of the sample attended public universities (58%) and private universities (41%). Participants who reported attending other types of school (1%) indicated attending private colleges. Participants majored in 68 areas of study, with the majority majoring in science (e.g., biology, psychology, nursing). As for GPA of the participants, it became evident that a few students possibly used a different scaling system than 4.0 scaling system. Three participants who reported GPA higher than 4.0 were omitted as outliers for descriptive statistics. Without these outliers, GPA ranged from 1.9 to 4.0 ( $M = 3.28$ ,  $SD = .45$ ). The majority of the participants reported financing their education through parental support (88%) as well as through financial aid or scholarships (57%). The participants were requested to select all the answers that apply for this question. Thus, the percentages total more than 100%.

As can be seen in Table 2, most participants reported belonging to ethnic organizations or groups on or off campus, ranging from 1 to 20 ethnic organizations ( $M =$

1.6,  $SD = 1.94$ ). The majority of the participants reported belonging to organizations or groups on or off campus, ranging from 1 to 11 ( $M = 2.8$ ,  $SD = 2.08$ ).

Table 1: *Demographic Description of Sample*

	<i>n</i>	% of sample	<i>M</i>	<i>SD</i>
<i>Age</i>			19.8	1.62
<i>Gender</i>				
Female	155	76.7		
Male	47	23.3		
<i>National origin</i>				
Chinese	113	55.7		
Taiwanese	59	29.1		
Mixed	10	4.9		
Biracial/Multiracial	21	10.3		
<i>Adoption History</i>				
Yes	2	1.0		
No	201	99.0		
<i>Year in school</i>				
Freshman	36	17.7		
Sophomore	64	31.5		
Junior	63	31.0		
Senior	33	16.3		
Fifth year	6	3.0		
Other	1	0.5		
<i>Major in school</i>				
Business	34	17.2		
Engineering	24	12.1		
Liberal arts	34	17.2		
Science	89	44.9		
Others (Education, Communication, Fine arts)	11	0.06		
Undecided	6	0.03		
<i>Type of school</i>				
Public	118	58.4		
Private	82	40.6		
Others	2	1.0		
<i>Location of school</i>				
East Coast	67	33.3		
West Coast	73	36.3		
Midwest	36	17.9		
South	25	12.4		
<i>Financing for education</i>				
Parents	179	88.2		
Relative	10	4.9		
Student loan/	78	38.4		
Work study	47	23.2		
Financial aid	116	57.1		
Self-pay	41	20.2		
<i>Marital status</i>				
Single	199	98.0		
Married	3	1.5		
Divorced	1	0.5		
<i>Overall GPA</i>			3.3	0.5
<i>Number of organizations</i>			2.9	2.1
<i>Home area</i>				
Urban	75	36.9		
Suburb	121	59.6		
Rural	6	3		
Other	1	0.5		

Note. *n* = number, *M* = mean, *SD* = standard deviation



Table 2: *Description of Sample based on Cultural Context variables*

	<i>n</i>	% of sample	<i>M</i>	<i>SD</i>
<i>Generational status</i>				
First generation	115	56.7		
Second generation	77	37.9		
Third generation	4	2.0		
Fourth generation	3	1.5		
Fifth generation	4	2.0		
<i>Community students grew up with</i>				
Predominantly White	63	31.0		
Ethnically mixed	80	39.4		
Predominantly Asian	56	27.6		
None of the above	4	2.0		
<i>Campus community</i>				
Predominantly White	89	44.3		
Ethnically mixed	88	43.8		
Predominantly Asian	20	10.0		
None of the above	4	2.0		
<i>Number of same-ethnic friends</i>			25.9	26.9
<i>Number of ethnic organizations</i>			1.62	1.94

*Note.* *n* = number, *M* = mean, *SD* = standard deviation

As shown in Table 2, the ethnic composition of the communities the participants grew up in was evenly distributed among predominantly White communities (31%), predominantly Asian communities (28%), or ethnically mixed (39%). One participant reported growing up in his/her home country at a young age and in a mixed ethnic community in the U.S. One participant reported moving around different types of communities from predominantly White to mostly Asian communities. Two other participants reported growing up in racially mixed communities such as White and Asian. The majority of the sample described their campus community as either predominantly White (44%) or ethnically mixed (44%).

The majority (98%) of the participants reported having friends of the same ethnicity ( $n = 196$ ;  $M = 25.9$ ,  $SD = 26.9$ ). The majority of the sample described their home area as either urban (37%) or suburb (60%).

### *Procedures*

*Recruitment Procedures.* Approval from the Institutional Review Board was sought from Penn State University. After research approval was granted and the pilot study to examine the psychometric properties of one scale (modified version of the Discrepancy subscale of APS-R; a complete description of the pilot study can be found in the measures section) took place, participants were recruited from different locations using diverse media outlets (electronic mailings, flyers). Requirements for voluntary participation in this study included being 18 years of age or older, a U.S. citizen or permanent U.S. resident who identifies himself or herself as of Chinese descent (e.g., Chinese American, Taiwanese American), and an undergraduate student.

I recruited participants through a number of electronic mailing lists, including those of major Asian American, Chinese, and Taiwanese national student organizations (e.g., National Asian American Student Conference, East Coast Asian American Student Union, Intercollegiate Taiwanese American Students Association, Alpha Kappa Delta Phi); Asian American, Chinese, Taiwanese, Japanese, Hawaiian, and Hong Kong student organizations at Penn State; and the electronic mailing list of Asian American Psychological Associations. I also recruited students through the Director of Multicultural Services at Penn State, who placed my recruitment notice on electronic mailing lists of students in different colleges and campuses at Penn State. A recruitment notice was also sent to Japanese and Chinese language programs at Penn State.

The e-mail letter (see Appendix A) invited people to participate in the survey. The letter explained the purpose of the study, ensured anonymity, and asked for voluntary participation. At the end of the letter, students were directed to click on the research website, if they decided to participate. Students were informed that they would be eligible to participate in a random drawing for four \$25 online gift certificates if they completed the survey.

Recruitment flyers (see Appendix C) were also posted on Penn State campus as well as at Asian and non-Asian grocery stores, coffee shops, Asian restaurants, community bulletin boards in New York, the Chicago area, Hawaii, and the San Francisco Bay area. I asked my friends who lived in these areas to post my flyers. The flyers stated the purpose of the study, ensured anonymity, and asked for voluntary participation, as well as noted the length of the survey and the participation incentive. I designed the flyer in a way that potential participants would be able to detach from the flyer a slip of paper with the research website information on it, which would also serve as a reminder to go online later and take the survey.

*Data collection procedures.* Using <http://www.psychdata.com>, I coordinated a web site for participants to complete four measures and a demographic questionnaire. Use of the internet for psychological research has been debated for its costs and benefits (e.g., Gosling, Vazire, Srivastava, & John, 2004; Kraut et al., 2004). The benefits of online research include obtaining larger sample sizes, being less expensive, and obtaining less data entry errors than found using most traditional techniques (e.g., paper-and-pencil questionnaire; Gosling et al; Kraut et al). An Internet sample can be more diverse, yet

have results similar to that of laboratory based paper and pencil studies (Krantz & Dalal, 2000).

On the other hand, sample bias, limitations with confidentiality, and lack of control over the research environment are a few of the concerns expressed by psychology researchers about using the internet (e.g., Buchanan, 2000; Kraut et al., 2004). Kraut et al. cautioned that online research may require larger samples than comparable traditional methods, such as telephone-based research, in order to compensate for the greater error involved when research participants are not diligent. According to Kraut et al., online research participants may invest less time and energy in the research than those in a telephone survey. Thus, researchers lose control over the online environment in which the research is conducted (Kraut et al.). On the other hand, Gosling et al. (2004) noted that paper-and-pencil measures are just as susceptible to faking or dishonest responses as on-line measures. Research has shown that self-selected participants provide clearer, more complete responses than participants who are not self-selected such as undergraduate psychology students (e.g., Petitt, 2002). John and Benet-Martinez (2000) recommended that researchers check participant motivation by examining scale reliabilities and discriminant validities.

Prior to collecting data, the website questionnaires were piloted with five undergraduate/graduate students of Asian descent to check the length of time it took to complete the on-line survey and to check for clarity and flow of the survey. The survey took between 10 and 15 minutes. All participants reported that the online survey was clear and one participant had feedback about an apostrophe being transformed to a different character possibly due to a different computer system. This problem was fixed.

The online data collection procedures started with an introduction to the requirements for the study and a voluntary informed consent statement. Participants needed to agree that they met the research requirements (i.e., age limit and ethnicity criteria) and accept the informed consent statement by clicking a designated on-screen button. After informed consent was obtained, participants were directed to the data collection website, which contained the five measures involved in the study. The following measures were randomly ordered to prevent question order bias: the modified Discrepancy Subscale (Slaney, Rice, Mobley, Trippi, & Ashby, 2001), the Parental Expectations Subscale (Frost et al., 1990), the Asian Values Scale (AVS; Kim, Atkinson, & Yang, 1999), the Depression Anxiety Stress Scales-Short Form (DASS-21; Lovibond & Lovibond, 1995) and a demographic questionnaire. These five measures were randomly ordered based on a Latin Square design, which resulted in five different versions of the online survey.

At the end of the survey, a screen message thanked participants for their participation and directed them to go to the next page if they were interested in participating in a random drawing. Those who decided to participate in a random drawing were directed to another website, and they were asked to supply their e-mail address. A screen message explained that, in order to ensure anonymity and confidentiality, their responses and the contact information that they were about to fill out were not linked. According to Locke, creating two separate and distinct data sets (main survey and survey inquiring contact information) allows the researcher to protect the anonymity of research data and the confidentiality of random drawing registration (personal communication, October 5, 2004).

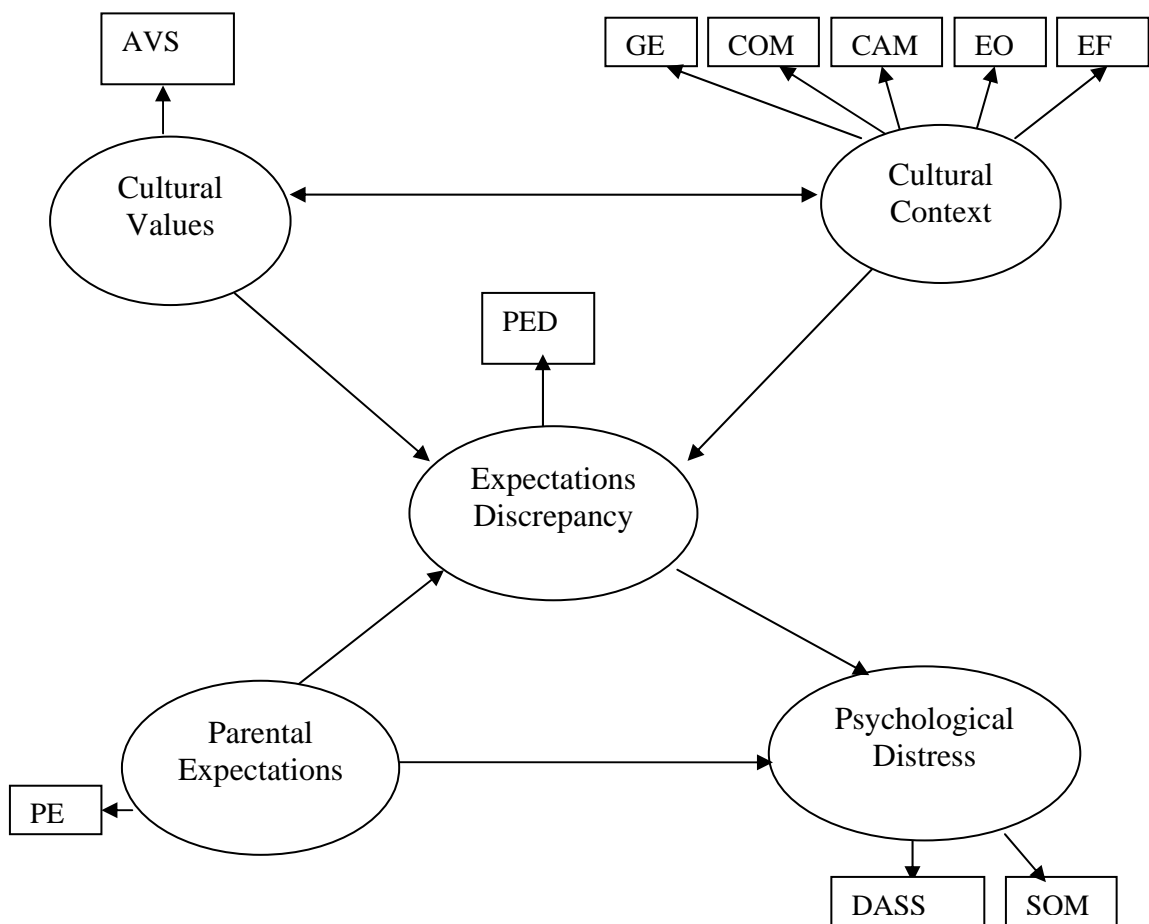
In order to ensure anonymity, the web site never asked participants for their names. Data submitted was encrypted using SSL (secure server layer) technology. Both the questions and participants' responses were encrypted for secure transmission. In addition, pages of the survey did not have a "Back" button, meaning that a third party could not view any data that had already been entered. When a survey was completed, the window closed automatically, thus reducing the chance of a third party viewing previously entered data. This also meant that after completing each page of the survey, participants could not change their answers.

Data collected are the property of myself as a user of PsychData. Once data were submitted by participants, the data were password protected and could only be downloaded by myself, using my email address and password. PsychData.com has deleted my surveys and data upon my termination of services.

### *Measures*

Multiple items and scales were used to measure each latent construct in this study (see Figure 3). Observed variables (i.e., those that are actually measured through responses to items on measures) are represented by squares, whereas latent variables (i.e., those that are unobserved, hypothesized constructs that are measured through the observed variables) are represented by circles.

*Demographic questionnaire.* On the demographic questionnaire, the following participant information was requested: age, sex, generation status (first, second, third, fourth, and fifth), national origin (Chinese, Taiwanese, Mixed, Biracial or Multiracial), academic year in school (freshman, sophomore, junior, senior, fifth year, and other), adoption history, major, type of school (public university, private university, community



*Figure 3: Structural Model. PE = Parental Expectations subscale, PED = Parental Expectation Discrepancy scale, GE = generational status, COM = ethnic composition of childhood community, CAM = ethnic composition of campus community, EO = level of involvement in ethnic groups/organizations, EF = friends of the same ethnicity, AVS = Asian Value Scale, DASS = Depression Anxiety Stress Scale, SOM = somatization.*

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college), marital status, financial educational support, childhood community, campus environment, involvement in ethnic organization, and number of friends of the same ethnicity. The demographic questionnaire can be found in Appendix I.

*Parental Expectations Discrepancy.* Perceived discrepancy in parental expectations and self-performance was measured by the Parental Expectation Discrepancy scale (see Appendix I), which is a modified version of the Discrepancy subscale of the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Robert Slaney granted me permission to modify the Discrepancy subscale of the APS-R (personal communication, July 21, 2004). The APS-R (see Appendix N) is a 23-item measure of perfectionism, consisting of three subscales: High Standards (7 items), Order (4 items), and Discrepancy (12 items).

The three-factor model for the APS-R was tested using confirmatory factor analysis (Slaney et al., 2001). The model showed an adequate fit:  $\chi^2(227, N = 204) = 495.22, p < .05$ ; the standardized root-mean-square residual = .08; the root-mean-square error of approximation (RMSEA) = .07; 90% confidence interval around RMSEA = .06 to .08; the comparative fit index (CFI) = .90. Internal consistency for the APS-R scores has been found to range from .82 to .92 in studies in which Asian American undergraduate students were part of the sample (i.e., 2.7% of 273 students in Grzegorek, Slaney, Franze, & Rice, 2004, 7.8% of 809 students in Slaney et al.).

The Discrepancy subscale measures “the perception that one consistently fails to meet the high standards that one has set for oneself” (Slaney, Rice, & Ashby, 2002, p. 69). Examples of some of the Discrepancy subscale items are “I often feel frustrated



because I can't meet my own goals," "My best just never seems to be good enough for me," "I rarely live up to my own high standards."

The internal consistency coefficient for the Discrepancy subscale scores was .92 in Grzegorek et al.'s (2004) study. In the same study, test-retest reliability was .83 for the Discrepancy subscale scores over a period of 3 weeks. Construct validity of the APS-R Discrepancy subscale has been supported. Convergent validity was provided by the positive correlation between the Discrepancy subscale and Self-Oriented Perfectionism ( $r = .31, p < .05$ ) and Socially Prescribed Perfectionism ( $r = .43, p < .05$ ; Slaney et al., 2001). The subscale intercorrelation between High Standards and Order was .42, between High Standards and Discrepancy was -.12, and between Order and Discrepancy was -.03 (Slaney et al.).

In the present study, the Discrepancy subscale was modified so that it captured the perception that one consistently fails to meet high parental standards. One's own standards and expectations were altered to those of parents in this modified Discrepancy scale. Consistent with the original Discrepancy scale, the Parental Expectation Discrepancy scale consists of 12 items. Examples of some of the statements on the Parental Expectations Discrepancy scale are "I often feel frustrated because I can't meet my parents' goals," "My best just never seems to be good enough for my parents," and "I rarely live up to my parents' high standards." Each question is rated on a 7-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. Each item score is added up to obtain total scores. Total scores range from 12 to 84, with the higher scores indicating higher discrepancy between perceived parental expectations and perceived self-performance.

Because the Parental Expectation Discrepancy scale is a modified version of the Discrepancy subscale, a pilot study was conducted to establish a baseline level of adequate reliability and validity in order to use the measure in the study. Fifty Chinese American undergraduates and graduates were recruited from Penn State University using list serves of Asian American students through the Multicultural Resource Center and different student organizations (e.g., Taiwanese American Student Organization) as well as electronic mail lists of ethnic professional organizations such as Asian American Psychological Association. The recruitment flyers (see Appendix D) were also posted on Penn State campus.

Although the final study intended to recruit only Chinese American undergraduate students, the recruitment category for the pilot study was broadened to include graduate students due to the anticipated challenge with recruiting this specific target group. The content of the e-mail letter for participants was similar to the final study (see Appendix X) except that the time for the survey was indicated to be 5 minutes and the recruitment criteria included graduate students. Students were informed that they would be eligible to participate in a random drawing for one \$25 online gift certificates if they completed the survey.

Consistent with my final study, I used <http://www.psychdata.com> to coordinate a web site for participants to complete two measures and a demographic questionnaire. The entire APS-R and the Parental Expectation Discrepancy scale were used in the pilot study in order to examine the pattern of convergent and discriminant validity. In the final study, however, only the Parental Expectation Discrepancy scale was used in order to minimize the number of items and prevent participants from skipping items.

A total of 50 students participated in the pilot study. There were no missing values except with the demographic questionnaire. Thus, the total sample consisted of 50 male and female undergraduate and graduate students of Chinese descent who identified as either US citizens or permanent residents of the U.S. Participants' ages ranged from 18 to 36 ( $M = 23.0$ ,  $SD = 4.15$ ). Twenty-two percent of the sample was female ( $n = 11$ ); 78% of the sample was male ( $n = 38$ ); and two participants did not answer this question. Most of the participants (64%,  $n = 32$ ) identified themselves as Chinese Americans, followed by 24 % ( $n = 12$ ) Taiwanese Americans, 6% ( $n = 3$ ) mixed ethnicity, and 4% ( $n = 2$ ) biracial/multiracial. The majority of them identified themselves as first-generation (66%,  $n=33$ ), followed by second-generation (28%,  $n = 14$ ), and third-generation (2%,  $n = 1$ ). Sixty-four percent of the sample was undergraduate students ( $n = 32$ ), whereas thirty-four percent of the sample was graduate students ( $n = 17$ ).

In the pilot study, the Cronbach alpha of the modified Discrepancy subscale (Parental Expectation Discrepancy scale) was .95. In the final study, the modified Discrepancy subscale had a Cronbach alpha of .96. Convergent validity was evidenced by the significant correlation between the modified Discrepancy scale and the original Discrepancy ( $r = .54$ ,  $p < .001$ ). Discriminant validity was evidenced by lack of correlation between the modified Discrepancy scale and two of the other subscales of APS-R (High Standards and Order). Exploratory factor analysis with principal axis factoring was attempted to examine the factor structure. One factor was extracted, with eigenvalues of 8.381. All the 12 items loaded highly onto the factor with coefficients ranging from .60 to .90. Although the sample size of 50 was too small for factor analysis to produce reliable

results, the other validity and reliability information supported the appropriateness of this scale to be used in the final study.

*Perceived Parental Expectations.* In this study, I used Frost et al.'s (1990) definition of parental expectations, "the tendency to believe that one's parents set very high goals" (p. 453). Thus, perceived parental expectations was measured using the Parental Expectations subscale of the Multidimensional Perfectionism Scale (MPS; Frost et al., 1990). I decided to use only the Parental Expectations subscale as the other subscales did not seem to capture the parental expectations construct that I was interested in. Permission to use the Parental Expectations subscale was granted by Randy O. Frost (personal communication, October 18, 2004).

The Frost et al.'s MPS consists of six subscales: Personal Standards, Parental Expectations, Parental Criticism, Doubting of Actions, and the Organization. The principal factor solution produced six distinct factors. The Parental Expectations subscale scores were significantly correlated with scores on three other MPS's subscales (i.e., Parental Criticism, Personal Standards, and Concern over Mistakes).

Frost et al.'s MPS has been validated against other measures of perfectionism, including Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS). The Parental Expectations subscale was found to be significantly and positively correlated with Hewitt and Flett's Socially-Prescribed Perfectionism scale (people's beliefs that others set extremely high standards for them), providing support for concurrent validity (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Furthermore, principal components analysis of both sets of MPS subscales was conducted and revealed that the Parental Expectations subscale was on the same factor (Maladaptive Evaluation Concerns) as the

following subscales: Frost et al.'s MPS subscales of Concern over Mistakes, Parental Criticism, and Doubts about Actions and Hewitt and Flett's MPS subscales of Socially-Prescribed Perfectionism.

The Parental Expectations subscale consists of 5 items (e.g., "My parents have expected excellence from me," "My parents set very high standards for me"). Participants were asked to respond to items on the Parental Expectations subscale using a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). The Parental Expectations is scored by summing the items, with total scores ranging from 5 to 25. Higher scores indicate that children perceive higher expectations from parents. Internal consistency scores (alpha) have ranged from .84 to .86 in studies that included a sample of Asian American undergraduate students (Chang, 1998; Frost et al., 1990). In the present study, the Parental Expectation subscale yielded a Cronbach alpha of .82.

*Adherence to Asian Values.* The Asian Values Scale (AVS; Kim, Atkinson, & Yang, 1999) was used to measure participants' adherence to Asian values that are endorsed more highly by Asian Americans than by European Americans (see Appendix L). Bryan Kim granted me the permission to use AVS on September 6, 2003. The AVS is a self-report measure with 36-item statements that describe 12 Asian value dimensions (e.g., "One should be humble and modest"). It is rated on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*). Total scores can be obtained by adding the scores from 36 items. Total scores can range from 36 to 252, with higher scores indicating higher adherence to Asian values. Internal consistency scores (coefficient alpha) have ranged from .81 to .86 and the 2-week test-retest reliability was reported to be .83 (Kim & Atkinson, 2002; Kim et al., 1999; Kim, Li, & Liang, 2002; Li & Kim, 2004). In this

study, coefficient alpha was .88, although only 35 items were used due to omitting the 36<sup>th</sup> item of the scale. Thus, in this study, the plausible score range was from 35 to 245.

Kim et al. (1999) used exploratory factor analyses to examine the structural validity of AVS and identified the following six factors representing Asian cultural values: collectivism, conformity to norms, emotional self-control, family recognition through achievement, filial piety, and humility. Kim et al. also conducted a confirmatory factor analysis on several Asian acculturation measures to test a two-factor model of Asian acculturation: Factor I--Asian Values Acculturation and Factor II-- Asian Behavioral Acculturation. The Asian Values Acculturation Factor consisted of the AVS and two measures (Vertical Collectivism [VC] and Horizontal Collectivism [HC]) of the Individualism-Collectivism Scale (Triandis, 1995), whereas the Asian Behavioral Acculturation Factor consisted of the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA; Suinn, Rickard-Figueroa, Lew, & Vigil, 1987), which was split into three 7-item parcels. Confirmatory factor analysis yielded a Goodness-of-Fit Index (GFI; Jöreskog & Sorbom, 1984) equal to .973, a Comparative Fit Index (CFI; Bentler, 1990) equal to .972, and Bentler-Bonett Normed Fit Index (NFI; Bentler & Bonett, 1980) equal to .961, providing evidence of concurrent validity of the AVS. Further, discriminant validity was evidenced by the low correlation between the AVS and the SL-ASIA scores ( $r = .15$ ), indicating that Asian values acculturation and Asian behavioral acculturation are tapping different aspects of acculturation.

*Psychological Distress.* The Depression Anxiety Stress Scales-Short Form (DASS-21; Lovibond & Lovibond, 1995) and four somatization items developed for this survey were used to measure psychological distress. Due to lack of brief measure of

somatization tested with Asian Americans, somatization items were developed after consulting with scales that have somatization items such as Brief Symptom Inventory-18 (BSI-18; Derogatis, 2001) and Outcome Questionnaire-45 (OQ-45; Lambert et al., 1996). Somatic complaints that are often seen among Asian Americans such as back problems and headache were incorporated (Lee, 1996). Participants were asked to select the choices that best correspond to their agreement with their tendency to have headaches, stomach aches/digestive problems, muscle tension, and back problems when under stress. consulting with scales that have somatization items such as Brief Symptom Inventory-18 (BSI-18; Derogatis, 2001) and Outcome Questionnaire-45 (OQ-45; Lambert et al., 1996) while incorporating somatic complaints that are often seen among Asian Americans such as back problems and headache (Lee, 1996). The four items are rated on a 5-point Likert-type scale (1 = Agree, 5 = Disagree). Total scores range from 4 to 20. However, in order to make the direction of rating consistent with the DASS, I reversed scores prior to data screening so that higher scores would indicate greater tendency for somatization.

Cronbach's alpha for these somatization items was .50. Reliability analysis indicated that deletion of the item on stomach aches/digestive problems would improve reliability. Because the literature indicated the tension related problems such as back problems and headaches as common somatic complaints among Chinese Americans (Lee, 1996), I decided to retain three items related to tension and drop the item on digestive problems. Cronbach's alpha for the three remaining items (i.e., muscle tension, headaches, and back problems) was .67. Although this was still marginal for reliability, I decided to retain somatization items due to the importance of examining somatization with Chinese Americans.

The DASS-21 is a 21-item scale version of the original 42-item version designed to measure anxiety, depression, and stress. It is rated on a 4-point Likert-type scale to rate each symptom on the basis of its severity during the previous week (0 = *did not apply to me at all*, 3 = *applied to me very much or most of the time*). The DASS-21 consists of Depression (7 items), Anxiety (7 items), and Stress (7 items) subscales. Sample items are “I experienced breathing difficulty” (Anxiety), “I feel that my life is meaningless” (Depression), “I found it difficult to relax” (Stress). Each subscale total scores range from 0 to 42, with higher scores indicating greater anxiety, depression, and stress. Antony, Bieling, Cox, Enns, and Swinson (1998) reported Cronbach alphas for the DASS-21 subscales, with .94 for Depression, .87 for Anxiety, and .91 for Stress. Wei, Russell, Mallinckrodt, and Zakalik’s (2004) cross-cultural study, which included 196 Asian American college students, reported Cronbach’s alphas of .96 for Depression and .89 for Anxiety. There is no test-retest reliability estimates reported for DASS-21, but 2 week test-retest correlations for the original DASS with the clinical sample ranged from .71 to .81 (Brown, Chorpita, Korotitsch, & Barlow, 1997). In this study, Cronbach’s alpha for Depression, Anxiety, and Stress subscales was .88, .77, and .83 respectively.

Both exploratory and confirmatory factor analysis with clinical (Brown et al., 1997) and non-clinical samples (Lovibond & Lovibond, 1995) were conducted for DASS and indicated that the revised three-factor solution based on the result of exploratory factor analysis had a best fit among other solutions. Exploratory factor analysis conducted by Antony et al. (1998) indicated a three-factor solution for DASS-21, accounting for 67% of the variance for DASS-21. Adequately low intercorrelations were



reported, with the Stress and Depression factors correlating at .48, Stress and Anxiety at .53, and Anxiety and Depression at .28.

Concurrent validity was evidenced by significant correlations between the DASS-21 subscale scores and the Beck Anxiety Inventory (BAI; Beck & Steer, 1990), the Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988), and STAI-T. The correlation between the Depression and BDI was .79, between the Anxiety and BAI was .85. The correlations between Stress and BDI, BAI, and STAI-T were .69, .70, .68, respectively (Antony et al., 1998). The discriminant validity of the DASS-21 is not reported yet, but that of DASS subscales were evidenced by the magnitude of correlations between DASS and other clinical scales. For example, correlations between DASS-Depression scale and the BDI, the Positive and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988), and clinical severity rating of mood disorders were significantly higher than the magnitude of the correlations between DASS-Anxiety and DASS-Stress and these three measures (Brown et al., 1997).

*Cultural Context.* The literature reviewed indicates the importance of taking into account cultural context in understanding the impact of perceived parental expectation on Asian as well as Chinese American students. Liu (1997/1998) contended that the variables of ethnic community and ethnic peers might serve as possible buffers in Chinese American students' experiences with parental achievement pressures. Several other studies have suggested that socialization may explain why Asian or Asian American students report less psychological distress than students of other ethnicities, despite the higher parental expectations they are faced with (Chang, 1998; Chang & Rand, 2000; and Crystal et al., 1994). Although socialization can be difficult to measure

in a pluralistic society such as the U.S., certain aspects of socialization can be tapped. In this study, the ethnic composition of the communities in which students grew up, the number of friends from the same ethnicity, and their involvement with ethnic organizations were used to measure cultural context.

In addition to community and interaction with peers, the ethnic composition of students' campus communities was included based on the assumption that students' perception of campus ethnic composition may influence the way Chinese American students perceive socialization on campus. Like other ethnic minority students, Asian American students are reported to experience difficulties adjusting to college life on predominantly White campuses (Lee & Davis, 2000; Tan, 1994; Uba, 1994). Thus, depending on campus diversity, it is possible that Chinese American students may not have their experiences with parental expectation validated by or compared with peers from their culture.

The cultural context construct was operationalized by the following self-report items: (a) type of childhood community, (b) type of campus community, (c) level of involvement in ethnic groups/organizations, (d) number of friends of the same ethnicity, and (e) generational status. All these items are included on the demographic sheets (see Appendix D). For childhood community, participants were asked to respond to a range of items regarding the ethnic composition of the community they grew up in - - predominantly White to predominantly Asian. The ethnic composition of campus communities was measured by a single item in demographic sheets. Participants selected from a range of responses to describe the ethnic composition of their campus community (e.g., predominantly White, predominantly Asian). Involvement with ethnic organizations

and groups was measured by asking respondents how many ethnic organizations/groups they belong to on or off campus. Finally, participants were asked to note how many friends of the same ethnicity they have and their generational status.

## Chapter 4

### Results

A number of preliminary analyses were conducted before proceeding with structural equation modeling analysis. Descriptive and univariate statistics as well as bivariate correlations were used to check for missing values, accuracy of data entry, and assumptions that are required for structural equation modeling. These preliminary analyses were followed by a test of the measurement model and two structural models (the final model and the alternative model).

#### *Preliminary Analysis*

A total of 228 people participated in the survey. As described in Chapter 3, five different versions of the surveys were randomly assigned to participants in order to prevent order bias. There were 14 respondents who did not complete the survey sufficiently. All of these 14 participants left significant number of questions blank: four left 24 questions blank, four left 26 blank, two left 27 blank, two left 48 blank, and one person left 73 questions blank. These participants were not included in the data analysis. In addition, eleven respondents (5%) were dropped due to being graduate students, having graduated from college, or being a high school student. Thus, there was a total usable sample of 203 participants (89% of total).

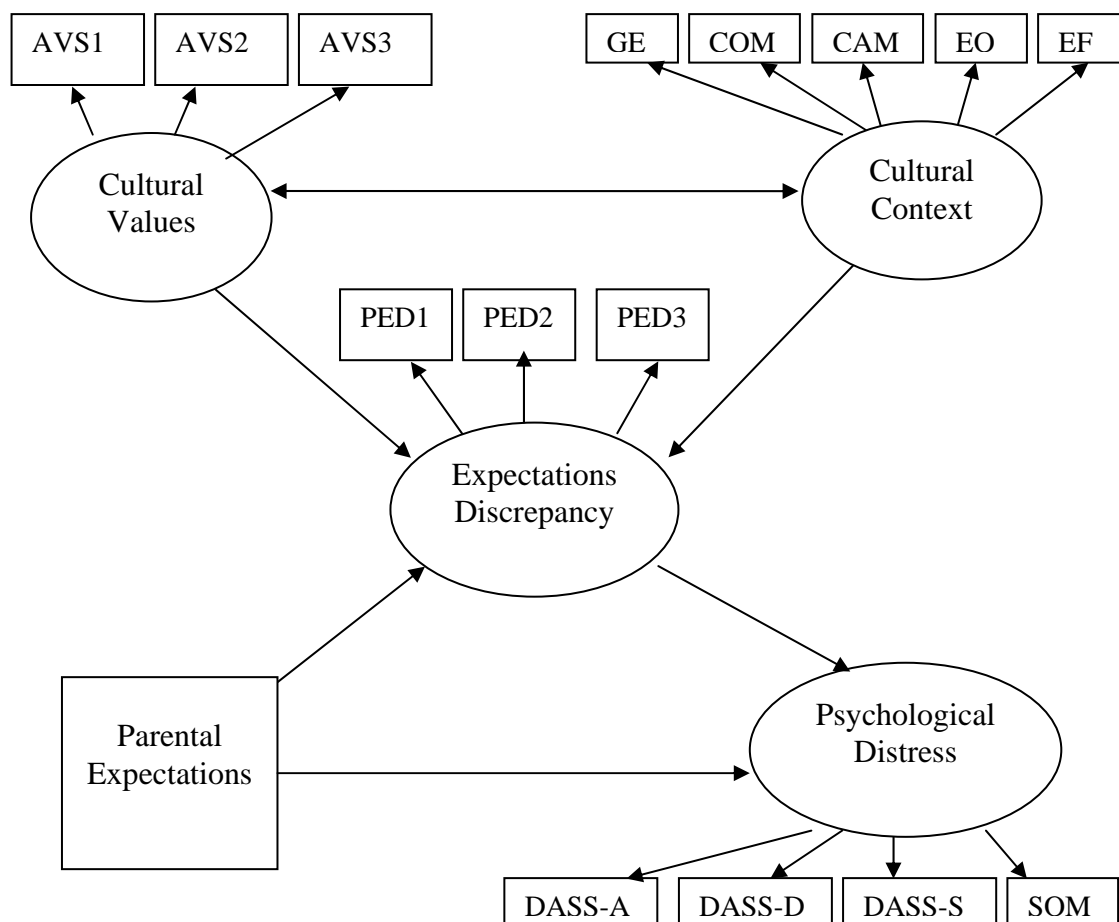
As I proceeded with data cleaning procedures, I needed to make two changes to the measurement model. First, I decided to increase the number of indicators per each latent variable (see Figure 4). Often researchers recommend having more than three indicators per latent variable (Quintana & Maxwell, 1999). In fact, Gasron (2005) warns that error cannot be modeled with only one indicator: models using two or less indicators

per variable are more likely to be underidentified and error estimates may be unreliable. There are a few statistical advantages to having multiple indicators. Multiple indicators can prevent us from mono-operationalization bias, which can result from using only one indicator (e.g., Heppner et al., 1999; Webb, Campbell, Schwartz, & Sechrest, 1966). Some researchers assert the importance of using multiple indicators because single indicator operationalization is merely an indirect reflection of the underlying construct (Cook & Campbell, 1979; Maxwell & Delaney, 1990). Furthermore, when multiple indicators are used with SEM, measurement error associated with each indicator can be estimated, and these estimates can be used to adjust measurement error (Bollen, 1989).

Thus, I made revisions to the number of indicators per each latent construct except parental expectations (see Figure 4). I changed parental expectations from latent variable to an observed variable, since Parental Expectation subscale has only 5 items. As for psychological distress, I decided to use three subscales of DASS-21 (Anxiety, Depression, and Stress) as well as the somatization items to represent this latent construct. It is a common practice for researchers to use subscales of a single scale to indicate a single construct (Quintana & Maxwell, 1999). Thus, four indicators were identified for the psychological distress variable.

Measures used for cultural values and parental expectation discrepancy had no subscales. According to Quintana and Maxwell (1999), researchers sometimes randomly divide the items of a single scale to create multiple subscales (i.e., item parcels). Thus, I created three item parcels for the AVS by randomly dividing the AVS into three subscales. These three subscales served as observed indicators for cultural values.

Similarly, three item parcels were created for the modified Discrepancy subscale to represent parental expectation discrepancy construct.



*Figure 4.* Structural Model. Parental Expectations = Parental Expectation subscale, PED1-3 = Parental Expectation Discrepancy item parcels, DASS-A = Anxiety subscale of DASS, DASS-D = Depression subscale, DASS-S = Stress subscale, SOM = somatization, AVS1-3 = Asian Values Scale item parcels, GE = generational status, COM = ethnic composition of childhood community, CAM = ethnic composition of campus community, EO = level of involvement in ethnic groups/organizations, EF = friends of the same ethnicity.

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The second change made before I proceeded to the SEM analysis was to dichotomize two of the indicators for cultural context construct. Whereas three indicators of this construct (i.e., generation status, number of friends from the same ethnicity, number of ethnic organizations students belong to) were numerical, two indicators (i.e., ethnic composition of childhood community and ethnic composition of campus community) were categorical. Originally, the two categorical indicators had four categories (“Predominantly White”, “Predominantly Asian”, “Ethnically Mixed”, and “none of the above”). There were, however, too few people for two of the categories for ethnic composition of campus community. Only 10% ( $n = 20$ ) chose “Predominantly Asian” and only 2% ( $n = 4$ ) chose “none of the above.” Three participants who chose “none of the above” were able to specify what they meant and indicated that the ethnic composition of their campus was a mix of Asian and White students, which essentially means that their campus is ethnically mixed.

The three categories under ethnic composition of childhood community were more evenly distributed. Those who answered “none of the above” ( $n = 4$ ) indicated that they either grew up in a non-Asian ethnic community, moved among different types of community, or immigrated to the U.S. after spending a few years in his/her home country.

Because it would not make sense to rank-order the ethnic composition of the campus community or childhood community, I decided to dichotomize these indicators using dummy coding. Thus, I used 0 to indicate “Predominantly White” and 1 to indicate “Non-White” (“Non-White” comprises of “Predominantly Asian” and “Ethnically Mixed”). A few people who answered “none of the above” were included in this Non-

White category as their description was either ethnically mixed or moving around different type of community.

A number of data screening procedures were conducted using SPSS. As Tabachnick and Fidell (2001) recommend, I first checked the accuracy of input data by examining out-of-range values, plausible means and standard deviations, and univariate outliers. The means and standard deviations of each scale and the demographics were found to be within an appropriate range. The minimum and maximum values, means, and standard deviations of each scale appeared plausible.

Univariate outliers were inspected for each scale by inspecting histograms. There was one case with an extremely low total score for the Parental Expectation subscale, which was otherwise well distributed. When I checked the bivariate scatterplots, this same case appeared as an outlier in the combination of the Parental Expectation and the Parental Expectation Discrepancy. Whereas the relationship between the Parental Expectation and the Parental Expectation Discrepancy had a positive linear relationship (higher Parental Expectation is related to the higher Parental Expectation Discrepancy), this single case had a negative relationship between these two variables. When I visually examined this case, he/she tended to respond with extreme scores. However, it did not seem that this participant either answered the questions all the same or randomly responded, as his/her responses to the reverse scoring of the AVS and demographic responses seemed reasonable.

There are several ways to deal with outliers; delete the outliers, transform the outliers, or alter the scores (Tabachnick & Fidell, 2001). I decided to retain this outlier without altering or transforming the scores for the following reasons. First, although the



combination of extremely low parental expectations and high parental expectation discrepancy may be unusual, it may be still plausible that one does not perceive his/her parental expectations as high but think that there is a big gap between their expectations and his/her own performance. Second, transforming or altering the scores may not work very well with multivariate outliers because the problem lies in the combination of scores (Tabachnick & Fidell). Third, Quintana and Maxwell (1999) recommend inclusion of outliers in SEM unless they are inaccurate or errors in coding. However, the cost of keeping the outliers needs to be noted in that, with the inclusion of some outliers, correlations may be deflated (Tabachnick & Fidell).

Next, I examined missing data among the scale answers, first not including demographics and then later including demographics. The pattern of missing data was analyzed. There appeared to be a pattern with cases that missed more than 45 items out of 95 total items. There seemed to be a pattern by version of the survey. Four participants who answered the first version of the survey missed all the demographics as well as item 9 to 35 of the AVS. There were no apparent pattern with missing data with version 2, but all of the three participants missed most of the scales. Four participants answering version 3 missed all the demographics, all of Parental Expectation, all of Expectation Discrepancy, and item 28 to 35 of the AVS. There was only one participant with missing data for version 4 but this individual failed to answer most of the scales. Two participants answering version 5 missed all of the AVS and item 8 to 21 of DASS.

Further examination revealed that these individuals who had the similar pattern of missing values, particularly with versions 1, 3, 5, stopped participating after item 46 (version 1 and version 5) or after item 49 (version 3). I checked with Psychdata.com for

potential technical problems that may have happened with my website, but there was no obvious indication of such problems. It is plausible that these students decided not to participate in the survey midway through the survey around the same time. I deleted these 14 cases from my analysis in addition to the 11 cases that were dropped due to participants not meeting the recruitment criteria.

Except these cases with gross missing data, there were few other missing data. Excluding the 11 cases with gross missing data, there were only 21 missing data points out of 19285 total items with 203 participants and 95 items per survey. The missing data appeared to have no patterns. With these 21 missing data points, I decided to estimate missing values and use the estimates for data analysis. According to Tabachnick and Fidell (2001), mean substitution has been one of the popular ways to estimate missing values. Thus, scale means were calculated from complete cases and then were inserted for missing data points in this study.

Missing data from the demographic sheet were not changed, as it did not make sense to estimate one's ethnic composition of childhood community, for example. Because the cultural context variable included five demographic questions (generational status, number of friends from the same ethnicity, number of ethnic organizations one belongs to, ethnic composition of childhood community, and ethnic composition of campus community), missing data in these five items were not included in the later analysis of the measurement model using SEM. There was usable data from 196 participants to test the measurement model as eight participants did not answer the demographic questions that were needed to measure cultural context variable.

Next I checked the bivariate scatterplots for nonlinearity and heteroscedasticity. There were linear relationships among most of the variables. Cultural context variables were not included in this analysis as they were demographic variables. Heteroscedasticity and nonlinearity can be caused by non-normality of data (Tabachnick & Fidell, 2001). Thus I checked normality as well. When the assumption of multivariate normality is met, the relationships between variables are homoscedastic.

Histograms for each indicator (see Appendix O) showed that most variables were distributed normally (i.e., Parental Expectation, Parental Expectation Discrepancy, the AVS, DASS-S, and somatization). Skewness and kurtosis for all the indicators as well as total scale scores are presented in Table 3. As shown in Table 3, there was moderate kurtosis and skewness with DASS-A as well as slight skewness with DASS-D. The levels of non-normality with these indicators were not high enough to violate the assumptions for structural equation modeling. On the other hand, most of the cultural context indicators were non-normally distributed due to their demographic nature.

Although one way to deal with nonnormality of data is to transform the scores, some statisticians caution against using transformations because it changes the interpretation of data (Tabachnick & Fidell, 2001). Furthermore, EQS, the software I used for SEM analysis, allows one to request statistics that provide a robust chi-square statistic ( $\chi^2$ ) called the Satorra-Bentler Scaled Statistic (S-B  $\chi^2$ ; Satorra & Bentler, 1988a, 1988b). As described more in detail later, this robust chi-square assumes an underlying nonnormal distribution of the sample. Thus, none of the variables were transformed.

Table 3

*Skewness and Kurtosis, Mean, and Standard Deviation of Indicators*

	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis	<i>M</i>	<i>SD</i>
PED1	.32	.17	-.76	.34	14.06	6.58
PED2	.35	.17	-.90	.34	13.76	6.74
PED3	.08	.17	-.74	.34	15.95	6.20
PE	-.47	.17	-.16	.34	18.2	4.38
AVS1	.08	.17	-.22	.34	53.36	9.28
AVS2	.27	.17	.15	.34	48.27	8.53
AVS3	.40	.17	.37	.34	47.22	9.84
DASS-A	1.71	.17	2.97	.34	8.94	7.27
DASS-D	1.15	.17	.93	.34	11.25	9.43
DASS-S	.73	.17	.32	.34	13.73	8.81
SOM	-.05	.17	-1.13	.34	8.7	3.42
GE	2.19	.17	6.54	.34	1.54	.77
EO	4.98	.17	41.29	.34	1.64	1.96
EF	1.54	.17	1.57	.34	25.76	27.08
COM	-.83	.17	-1.33	.34		
CAM	-.23	.17	-1.97	.34		

*Note.* PED1-3 = Parental Expectation Discrepancy, PE = Perceived Parental Expectations, AVS1-3 = Asian Values Scale, DASS-A = DASS-Anxiety, DASS-D = DASS-Depression, DASS-S = DASS-Stress, SOM = Somatization items, GE = Generational status; EO = Number of ethnic organizations students belong to, EF = Number of friends from the same ethnicity, COM = Ethnic composition of community while growing up, CAM = Ethnic composition of campus.

I then checked multicollinearity and singularity for each indicator.

Multicollinearity and singularity happen when variables are too highly correlated (Tabachnick & Fidell, 2001). Whereas multicollinearity happens when variables are very highly correlated (.90 and above), singularity refers to the redundancy of the variables

when one of the variables is a combination of two or more of the other variables (Tabachnick & Fidell).

Most indicators in this study did not indicate the problems of multicollinearity. However, the only indicators that could indicate multicollinearity were the Parental Expectation Discrepancy indicators, with their item parcels correlating highly with each other ( $r = .85 - .89, p < .01$ ). Although this was somewhat expected because they were the item parcels created from the same scale, I needed to be mindful that multicollinearity may be an issue with the Expectation Discrepancy indicators. However, I decided to keep them with the assumption that the benefit of having three indicators outweighed the potential problems with multicollinearity.

#### *Measures and Bivariate Correlations*

Scale means, standard deviations, reliability coefficients, and bivariate correlations for indicator scores of all measures are presented in Table 4. Scale means suggest that participants mostly experienced low levels of psychological distress. As indicated in the positive skewness of DASS-A and DASS-D, the sample reported low levels of anxiety and depression. Within the psychological distress construct, the sample had an intermediate level of somatization. The sample had a somewhat high level of perceived parental expectation, whereas it had a relatively intermediate level of parental expectation discrepancy. The adherence to Asian values (cultural values) appeared to be at an intermediate level.

As shown in Table 4, several scales in this study were significantly correlated. The subscales of the DASS (DASS-A, DASS-D, DASS-S) were significantly correlated with each other as well as with the total score for the somatization items. The item

parcels of Parental Expectation Discrepancy correlated highly with one another. The item parcels of the AVS were also significantly correlated with one another.

Among all the predictor variables, the Parental Expectation Discrepancy indicators had the highest correlations with all the subscales of the DASS, with coefficient correlations ranging from .25 to .41 ( $p < .01$ ). Similarly, among all the predictor variables, the Parental Expectation Discrepancy had the highest correlations with the somatization indicator ( $r = .19 - .27, p < .01$ ).

Interestingly, all of DASS subscales and somatization items significantly correlated with most of the AVS item parcels, the indicators for the cultural values variable. The AVS item parcels' correlation coefficients with the DASS subscales ranged from .21 to .31 ( $p < .01$ ). This indicates that higher scores in the adherence to Asian values are correlated with higher level of psychological distress.

The item parcels of Parental Expectation Discrepancy had significant correlations with Parental Expectation, with coefficient correlations ranging from .15 ( $p < .05$ ) to .51 ( $p < .01$ ). Most of the Parental Expectation Discrepancy item parcels and the Parental Expectation subscale were significantly correlated with the AVS item parcels. The correlation coefficients for the AVS and the Parental Expectation Discrepancy ranged

Table 4

*Means, Standard Deviations, Reliability Coefficients, and Correlations Among Subscales*

	PED1	PED2	PED3	PE	AVS1	AVS2	AVS3	DASS-A	DASS-D	DASS-S	SOM
PED1	-										
PED2	** .89	-									
PED3	** .85	** .88	-								
PE	** .40	** .50	** .48	-							
AVS1	** .16	* .14	** .22	* .17	-						
AVS2	** .22	** .21	** .33	* .23	** .72	-					
AVS3	** .23	** .21	** .30	* .05	** .75	** .75	-				
DASS-A	** .33	** .32	** .35	.10	** .31	** .29	** .27	-			
DASS-D	** .36	** .38	** .41	** .19	** .22	** .25	** .22	** .68	-		
DASS-S	** .25	** .27	** .33	** .23	** .28	** .27	** .21	** .71	** .72	-	
SOM	** .20	** .19	** .27	-.00	** .25	.13	* .18	** .34	** .27	** .36	-
M	14.06	13.76	15.95	18.21	53.36	48.27	47.22	8.94	11.25	13.73	8.70
SD	6.58	6.74	6.20	4.38	9.28	8.53	9.84	7.27	9.43	8.81	3.42
Alpha	.88	.91	.82	.82	.73	.69	.69	.77	.88	.83	.67

*Note.* PED1-3 = Parental Expectation Discrepancy item parcels, PE = Parental Expectation subscale, AVS1-3 = Asian Values Scale item parcels, DASS-A = DASS Anxiety subscale, DASS-D = DASS Depression subscale, DASS-S = DASS Stress subscale, SOM = somatization items, M = mean, SD = standard deviation, Alpha = Cronbach's alpha, \*\* = significant at  $p < .01$ , \* = significant at  $p < .05$ .

from .14 ( $p<.05$ ) to .33 ( $p<.01$ ), indicating that higher scores in the adherence to Asian values were associated with higher levels of parental expectation discrepancy.

Table 5 presents bivariate correlations between a number of the demographic variables including the cultural context variables (gender, generation status, GPA, number of ethnic organizations students belong to, number of organizations students belong to, number of students from the same ethnicity, ethnic composition of campus community, ethnic composition of childhood community) and scales of interest. The total scores of scales were used for these bivariate correlations in order to make the relationship with demographic variables more understandable.

I first examined the relationship between the cultural context variables and the total scores of scales used in this study. Among the five cultural context variables, generation status of the students was the only variable that had correlations with the scales of interest. Generation status had a negative correlation with Parental Expectations subscale ( $r = -.22, p<.01$ ) and the Parental Expectations Discrepancy scale ( $r = -.15, p<.05$ ). This indicates that the lower level of generation status (e.g., 1<sup>st</sup> generation) is associated with the higher levels of perceived parental expectations and parental expectation discrepancy.

I next examined the relationships between the rest of the demographic variables and the total scores of scales. One interesting finding is that lower GPA was correlated with higher levels of parental expectation discrepancy ( $r = -.43, p<.01$ ), but was not significantly related to parental expectation. Furthermore, GPA was negatively correlated with the DASS ( $r = -.19, p<.01$ ) as well as somatization ( $r = -.17, p<.05$ ) indicating that lower GPA is associated with higher levels of distress.



Table 5

*Bivariate Correlations for Scales and Demographics*

	PED	PE	DASS	AVS	SOM	GE	SEX <sup>a</sup>	GPA	EO	ORG	COM	CAM	EF
PED	-												
PE	** .49	-											
DASS	** .38	** .19	-										
AVS	** .25	** .22	** .31	-									
SOM	** .28	.01	** .40	** .20	-								
GE	* -.15	** -.22	-.12	-.13	.03	-							
SEX	.06	.07	-.06	.10	*-.16	.07	-						
GPA	**-.43	-.08	**-.19	*-.15	*-.17	.05	-.09	-					
EO	.11	-.10	.01	.08	.07	.02	.01	-.02	-				
ORG	-.08	-.07	-.01	.00	-.05	.03	-.09	*.18	** .49	-			
COM	-.03	-.08	.12	.13	.12	.09	.05	-.11	-.11	-.06	-		
CAM	.04	-.02	-.03	.09	.11	-.01	.04	-.03	-.11	*-.15	.12	-	
EF	.09	.06	-.05	.09	.13	-.12	-.01	**-.23	.10	.09	** .24	.05	-

*Note.* PED = Parental Expectation Discrepancy, PE = Parental Expectation, AVS = Asian Values Scale,

DASS = Depression Anxiety Stress Scale, SOM = somatization items, GE = generational status, SEX = sex

(<sup>a</sup>1 = female, 2 = male), GPA = Grade Point Average, EO = Number of ethnic organizations, ORG = number

of organizations, COM = ethnic composition of childhood community, CAM = ethnic composition of

campus, EF = number of same-ethnic friends, \*\* = significant at  $p < .01$ , \* = significant at  $p < .05$ .

There were a number of significant correlations with other demographic variables. For instance, the number of ethnic organizations students belong to was positively correlated with the number of organizations they belong to ( $r = .49, p < .01$ ). Furthermore, number of organizations students belong to was positively associated with the higher GPA students reported ( $r = .18, p < .05$ ). Curiously, the number of friends from the same ethnicity was negatively correlated with GPA ( $r = -.23, p < .01$ ). The number of friends from the same ethnicity was positively correlated with the ethnicity of the community in which students grew up ( $r = .24, p < .01$ ) indicating that students may have more friends from the same ethnicity when they grew up in more non-White community. However, the correlations with the number of friends from the same ethnicity warrants caution, due to the potential outliers who report an extremely high number of friends (e.g., 99).

Although gender differences were not observed with most variables, gender was significantly correlated with somatization. Female students tended to report higher scores on somatization than male students ( $r = -.16, p < .05$ ).

In summary, there was a usable sample of 203 participants for preliminary analysis after deleting 15 participants with missing values which did not indicate obvious patterns. Assumptions necessary for SEM were mostly met. However, the normality assumption was violated for most of cultural context variables. Multicollinearity was potentially an issue for the parental expectation discrepancy indicators due to their high intercorrelations.

Examination of bivariate correlations revealed that the parental expectation discrepancy had high correlation coefficients with the psychological distress indicators,

the cultural values indicators, and the parental expectation indicators. Similarly, parental expectations was significantly correlated with the DASS and the cultural values.

Unexpectedly, the cultural values indicators were significantly correlated with both of the psychological distress indicators. Among the cultural context indicators, the generational status showed significant negative correlations with parental expectations as well as parental expectations discrepancy. Among other demographic variables, GPA indicated significant negative correlations with parental expectations discrepancy and the total score of DASS as well as somatization items.

### Structural Equation Modeling

Structural Equation Modeling (SEM) was used in this study to test two competing models of relationships between parental expectations, perceived expectation discrepancy, cultural values and context, and psychological distress for Chinese American undergraduate students (see Figure 2 and 3). Ullman (2001) recommends using SEM when the phenomena of interest are multidimensional and complex, as SEM allows complete and simultaneous tests of all the relationships between one or more independent and dependent variables. In SEM, the relationships in a proposed model can be evaluated against the actual relationships in observed data (Quintana & Maxwell, 1999). SEM gives an overall indication of the fit between the proposed theory and data (Aron & Aron, 1999). Ullman states that SEM can show the adequacy of a model, the strength of relationships among variables, the amount of variance accounted for by the independent variables when predicting the dependent variable, and the reliability of all measured variables' scores. Thus, according to Ullman, SEM is a confirmatory technique, most

often used to test a theory. Furthermore, the relationships that are tested by SEM are free of measurement error, since measurement error is estimated and removed.

Like a factor analysis, SEM utilizes latent variables, each of which is a combination of specific measured variables. Thus a latent variable is not directly measured but stands for a weighted combination of several variables that it makes up. I used SEM in this study to test the relationship between perceived parental expectations, perceived discrepancy between parental expectations and self-performance, adherence to cultural values, and cultural context by testing the hypothesized model that contains all of these variables and the alternative model without the cultural variables (see Figure 2 and 3).

There are assumptions of SEM that need to be considered during data screening, including multivariate normality, linearity, and absence of multicollinearity and singularity (Ullman, 2001). As described before, normality was met for the variables measured by the scale subscales and items. The levels of non-normality with some of the indicators were not high enough to violate the assumptions of structural equation modeling. In general, kurtosis greater than 7 and skewness greater than 2 is considered problematic when using SEM (West, Finch, & Curran, 1995). However, there was significant nonnormality with some of the demographic variables used to indicate the cultural context variable. Furthermore, the Mardia Coefficient of 13.04 in EQS output for the measurement model was suggestive of multivariate nonnormality. Thus, the assumption of multivariate normality was violated.

The linearity assumption was met for variables measured by the scales. Examining the scatterplot indicated that there were linear relationships between the latent

variables and the dependent variables. As for cultural context indicators, overall linear relationships were indicated with the dependent variables, although two dichotomized variables (ethnic composition of campus community and childhood community) and the number of friends from the same ethnicity did not seem to have a meaningful correlation to the dependent variables.

Ullman (2001) recommended examining the determinant of the covariance matrix to check for multicollinearity or singularity. According to Ullman, multicollinearity occurs when variables are very highly correlated (.90 or above). Singularity occurs when variables are redundant. The occurrence of both factors inflates the size of error terms. As indicated in preliminary analysis, I created item parcels by randomly dividing the scale items to create more than three indicators for the Parental Expectation Discrepancy variable and the Cultural Values variable. For Parental Expectations, each item was used as an indicator and the three subscales of the DASS in addition to somatization variable were used to indicate the psychological distress variable. Understandably, the subscales and item parcels were highly correlated with each other. What seemed most problematic was the item parcels of Parental Expectation Discrepancy, with the highest correlations with each other ranging from .85 to .89 ( $p < .01$ ).

Having a full range of scores on measures and having sample size appropriate to the number of parameters in the model are also important aspects of design consideration for SEM. As indicated before, a full range of scores was represented for each scale. As for the sample size, Bentler and Chou (1987) suggest that there should be at least 5-10 participants per estimated parameter. In my proposed model, there were 31 parameters, indicating that there were about six participants per parameter with the sample size of 196.

### *Research Questions*

The following two research questions were tested by using SEM. First, does perceived discrepancy in parental expectations and self- performance mediate the relationship between perceived parental expectations and psychological distress? Second, what roles do cultural values and contexts have in students' perceived discrepancy and their level of psychological distress? More specifically, does cultural context have an indirect impact on psychological distress via perceived expectation discrepancy? And, does adherence to Asian values have an indirect impact on psychological distress via perceived expectation discrepancy?

*Measurement Model.* The first step in SEM is to perform a confirmatory factor analysis (CFA) in order to evaluate how well the latent constructs are represented by their respective indicators (Bollen, 1989). The confirmatory factor analysis model is considered to represent the measurement model in SEM (Byrne, 1994). Relations between the observed variables (indicators) and their underlying factors (latent variables) are the focus of the measurement model (Byrne). Kline (1998) asserts that researchers should test the measurement model first, and if the fit of the measurement model is found acceptable, then to proceed to testing the structural model by comparing the fit with that of different structural models. Thus I first tested the fit of the measurement model for the sample.

As indicated in preliminary analysis, all of the indicators in the cultural context (ethnic composition of childhood community and ethnic composition of campus community) were mildly or heavily (generational status and number of ethnic organizations students belong to) non-normally distributed. Thus, Maximum Likelihood

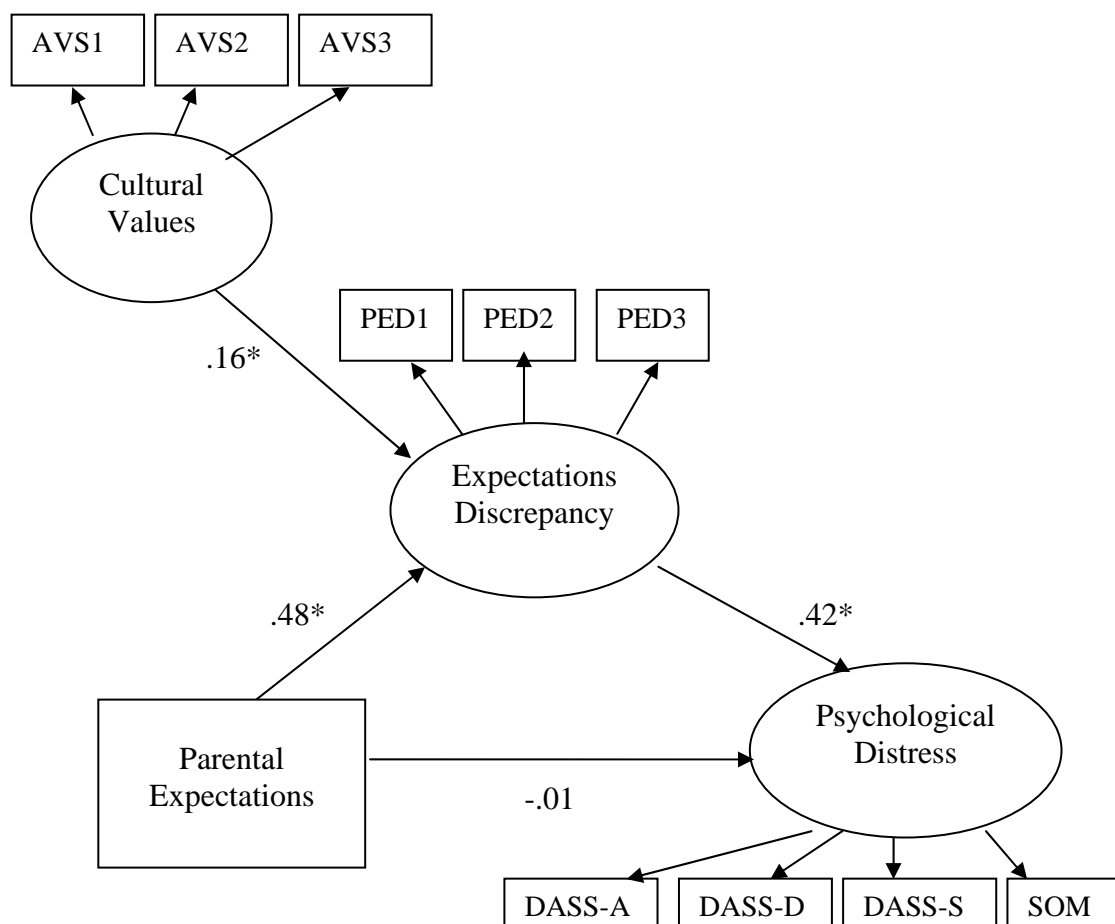
(ML) – Robust was chosen as the estimation method to test the measurement model. Robustness plays a critical role in choosing the appropriate estimation method (Boomsma, 2000). ML-Robust is the estimation method that assumes an underlying non-normal distribution of the sample and bases evaluation of model fit on a test statistic that has been corrected to take non-normality into account (Byrne, 1994). ML-Robust provides such test statistic called the Satorra-Bentler Scaled Statistic (S-B $\chi^2$ ; Satorra & Bentler, 1988a, 1988b) that incorporates a scaling correction for the  $\chi^2$  statistics when the normality assumptions are violated (Byrne). The Satorra-Bentler chi-square attempts to correct for the bias introduced when data shows marked non-normal distribution (Garson, 2005). The Satorra-Bentler Scaled Statistics (S-B $\chi^2$ ) is considered to be the most reliable test statistic for evaluating models under various distributions and sample sizes (Byrne).

The measurement model is comprised of four latent variables measured by three to four indicators and one observed variable (see Figure 4). The full model with 16 variables indicating the latent variables and error terms for each variable represents the measurement model for this study. The data file and model were submitted to the computer program EQS 6.1 (Bentler, 2004). In the CFA model (measurement model), all correlations were freed in order to estimate the zero-order correlations among all the latent variables. The measurement model had 31 parameters with 120 degrees of freedom. As described in preliminary analysis, I had a sample of 196 after dropping the participants with missing values in cultural context indicators.

Unfortunately, this proposed measurement model did not run properly due to problems that occurred with the two dichotomized categorical variables that serve as

indicators of cultural context (i.e., ethnic composition of campus community and childhood community). This could be related to the fact that dichotomization of these variables resulted in at least one variable (ethnic composition of community students grew up in) having disproportionate number of cases in one category over another. EQS indicated that these two indicators were problematic and that the test results may not be appropriate. Furthermore, most of the indicators for cultural context had poor factor loadings, ranging from .07 to .11. The only indicator with an appropriate loading was number of friends from the same ethnicity with loading of .23. Thus, I removed the cultural context latent variable from my model, creating a final model with three factors and one observed variable (see Figure 5).





*Figure 5.* Final Structural Model. PED1-3 = Parental Expectation Discrepancy item parcels, Parental Expectations = Parental Expectation subscale, DASS-A = DASS Anxiety subscale, DASS-D = DASS Depression subscale, DASS-S = DASS Stress subscale, SOM = somatization items, AVS1-3 = Asian Values Scale item parcels.

\* = significant at  $p < .05$

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The revised final model ran without error. All of the indicators had significant loadings onto respective latent variables at  $p < .05$  level. More specifically, parental expectation discrepancy 1, 2, and 3 loaded .92, .96, and .92 respectively on the Parental Expectation Discrepancy latent variable. For the Cultural Values latent variable, the AVS 1, 2, and 3 loaded .85, .85, .89 respectively. Finally, the Psychological Distress latent variable had loadings of .83 (DASS-Anxiety), .84 (DASS-Depression), .86 (DASS-Stress), and .39 (Somatization).

*Final Model.* The Maximum Likelihood (ML) estimation procedure was used to test the final model as well as the proposed alternative model. Two hundred three cases were used for the final model (dropping the cultural context variable, which had missing values, increased the sample size). This model contains 25 parameters, with about 8 participants per parameter. Table 6 displays the fit indices of the final model and the alternative three-factor model. A number of fit indices were used to assess the goodness of fit between the sample covariance matrix and the estimated population covariance matrix. Hu and Bentler (1999) recommend using a two-index presentation strategy to reject misspecified models and assess a fit between the model and the data. Hu and Bentler recommend using the maximum likelihood (ML) based standardized root mean square residual (SRMR) and supplementing it with a different index including the comparative fit index (CFI; Bentler, 1990) and the root mean square error of approximation (RMSEA; Browne & Cudeck, 1993). Hu and Bentler suggested that using a two-index presentation strategy would result in less Type I and Type II error than a one-index strategy.

The following describes the guidelines for interpreting the RMSEA: 0 = an exact fit,  $<.05$  = a close fit,  $.05$  to  $.08$  = a fair fit,  $.08$  to  $.10$  = moderate fit, and  $>.10$  = poor fit (Browne & Cudeck, 1993; MacCallum et al., 1996). As for the CFI,  $.95$  or greater is considered to be a good fit (Hu & Bentler, 1999), and  $.90$  is considered acceptable (Bollen, 1989). As for SRMR, values of  $.08$  or less are desired (Hu & Bentler). Because chi-square is based on sample size and complexity, these three fit indices are used for model plausibility. Quintana and Maxwell (1999) argue that the chi-square statistic is limited because it tests for an exact fit and does not test for a close enough fit. The results indicated an overall appropriate fit to the data,  $\chi^2(41, N = 203) = 109.28$ ,  $p < .000$ , CFI =  $.95$ , RMSEA =  $.09$ , SRMR =  $.11$ . Although SRMR of  $.11$  is not desirable, CFI of  $.95$  indicated good fit and RMSEA of  $.09$  indicated moderate fit.

As shown in Figure 5, three paths in the final model were statistically significant ( $p < .05$ ). Perceived expectation discrepancy was a strong predictor of psychological distress ( $\beta = .42$ ,  $p < .05$ ), whereas perceived parental expectations was not a significant predictor of psychological distress ( $\beta = -.01$ ). Adherence to cultural values was also a significant predictor of parental expectation discrepancy ( $\beta = .16$ ,  $p < .05$ ). Parental expectations significantly predicted parental expectation discrepancy ( $\beta = .48$ ,  $p < .05$ ). This result clarifies the mechanism behind the phenomena reviewed in the literature that parental expectations has not been a consistent predictor of psychological distress and it may be that perceived discrepancy plays a significant role in predicting psychological distress. Further, the results clarify the role of students' adherence to Asian values in how they perceive discrepancy between parental expectations and self- performance and, how

these factors together predict psychological distress. About 17% of the variance in psychological distress was explained by parental expectations and parental expectations discrepancy, while 25 % of the variance in parental expectations discrepancy was explained by cultural values and parental expectations.

Thus, the first research question (i.e., does perceived discrepancy in parental expectations and self-performance mediate the relationship between perceived parental expectations and psychological distress?) was answered. Data analysis indicated that the effect of parental expectations became non-significant in the presence of parental expectations discrepancy, indicating the role of parental expectations discrepancy as a mediator.

The second research question (i.e., does cultural context have an indirect impact on psychological distress via perceived expectation discrepancy? Does adherence to Asian values have an indirect impact on psychological distress via perceived expectation discrepancy?) was partially answered. The role of cultural context was not tested as the model that contained cultural context latent variable did not run due to the problems associated with this variable. On the other hand, adherence to Asian values was found to have an indirect effect on psychological distress via perceived discrepancy.

Hypothesis 1 was supported. The effect of Chinese American students' perceived parental expectations on psychological distress was mediated by their perceived expectations discrepancy (parental expectations → perceived discrepancy → psychological distress). Parental expectations contributed to psychological distress but only indirectly through perceived discrepancy between perceived parental expectations

and self-performance. In the presence of perceived discrepancy, the effect of parental expectations on psychological distress was non-significant.

Hypothesis 2 was also supported. Adherence to Asian values had an indirect effect on psychological distress via perceived discrepancy (Adherence to Asian values → perceived expectations discrepancy → psychological distress). Higher adherence to Asian values contributed to higher psychological distress indirectly through perceived discrepancy between perceived parental expectations and self-performance.

Unfortunately, hypotheses 3 and 4 were not tested due to the problems with the cultural context latent variable. Although the cultural context variables proved to be a challenge to measure, the bivariate correlations described in the preliminary analysis indicated the potential role of generation status as a variable contributing to the level of perceived parental expectations and perceived discrepancy.

*Alternative Model.* An alternative model was sought to be compared with the original model in order to clarify the role of culture in the mediation model of parental expectations, expectations discrepancy, and psychological distress. Originally, this study attempted to compare the proposed five-factor model to the alternative three –factor model (see Figure 1 and 2). However, due to the problems with cultural context indicators described before, the original model was modified to be a model with three factors and one observed variable (final model), allowing me to proceed with comparison to the alternative model. Because the final model had an adequate fit, I proceeded to compare the final model with the alternative model.

There are different ways to compare the models. When the model is not nested within another model, as in the case with this alternative model (i.e., two latent variables

are completely absent in the alternative model), Akaike's informational criteria (AIC) can be used to compare these non-nested models (Quintana & Maxwell, 1999). An AIC close to zero reflects good fit and between two AIC measures, the lower one reflects the model with the better fit (Garson, 2005). The decrease in AIC from the final model (27.28) to the alternative model (13.76) indicated that the alternative model had a better fit. There are no cutoffs with AIC, as AIC is used to compare models (Garson). The results indicated an appropriate fit to the data,  $\chi^2 (18, N = 203) = 49.77, p < .0001$ , CFI = .97, RMSEA = .04, SRMR = .09. Furthermore, as indicated in Table 6, all the fit indexes indicated better fit for the alternative model than for the final model.

Table 6

*Goodness of Fit Indices*

	CFI	SRMR	RMSEA	$\chi^2$ (DF)	$\chi^2$ /DF	p value	AIC
Final Model	.95	.11	.09	109 (41)	2.65	.000	27.28
Alternative Model	.97	.04	.09	50 (18)	2.94	.000	13.76

*Note.* CFI = Comparative fit index, SRMR = Standardized Root Mean-Square Residual, RMSEA = Root mean squared error of approximation, DF = degree of freedom.

In the alternative model, two paths were statistically significant ( $p < .05$ ), as indicated in Figure 5. Parental expectations discrepancy was a strong predictor of psychological distress ( $\beta = .43, p < .05$ ), whereas perceived parental expectations was not a significant predictor of psychological distress ( $\beta = -.01$ ). Parental expectations discrepancy significantly predicted perceived parental expectations ( $\beta = .50, p < .05$ ). About 18% of the variance in psychological distress was explained by parental expectations and parental expectations discrepancy, while 25 % of the variance in parental expectations discrepancy was explained by parental expectations.

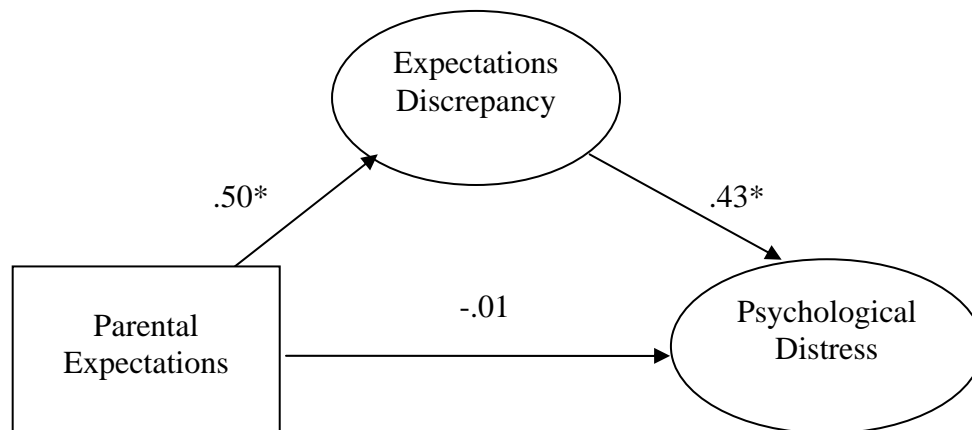


Figure 6: Alternative Model. PED1-3 = Parental Expectation Discrepancy

item parcels, Parental Expectations = Parental Expectation subscale, DASS-A = DASS Anxiety subscale, DASS-D = DASS Depression subscale, DASS-S = DASS Stress subscale, SOM = somatization items, AVS1-3 = Asian Values Scale item parcels.

\* = significant at  $p < .05$

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Thus, the results support the mediation model proposed. In the alternative model, it is hypothesized that culture has no role in the relationship among perceived parental expectations, perceived discrepancy, and psychological distress. Although the overall model was supported, perceived parental expectations had an indirect effect on psychological distress via perceived discrepancy.

Although the alternative model had a better fit, it should be noted that the alternative model is only slightly better than the final model, as indicated by the slight improvement in fit indices. Because one of the major purposes of this study was to examine the role of culture in the relationship between parental expectations, perceived discrepancy, and psychological distress, the role of cultural values evidenced in the final

model is noteworthy. Thus, the final model should not be discounted nor should the finding from the Asian Values Scale.

Table 7

<i>Result of Hypotheses Testing</i>	
Hypotheses	Result
Hypothesis 1 and 5: The effect of Chinese American students' perceived parental expectations on psychological distress will be mediated by their perceived expectations discrepancy.	Supported
Hypothesis 2: Adherence to Asian values has an indirect effect on psychological distress via perceived discrepancy.	Supported
Hypothesis 3: Cultural context has an indirect effect on psychological distress via perceived discrepancy.	Not tested. Bivariate correlation found significant correlation between generational status and parental expectations and expectations discrepancy
Hypothesis 4: Cultural context and Chinese American students' adherence to Asian values will be correlated.	Not tested



## **Chapter5**

### **Discussion**

This study sought to examine the direct and indirect effects of perceived parental expectations, perceived discrepancy in parental expectations and students' performance, cultural context, and cultural values on psychological distress among Chinese American undergraduate students. The direct impact of perceived discrepancy on the relationship between parental expectations and psychological distress as well as the indirect impact of cultural context and cultural values on psychological distress via perceived expectations discrepancy were the foci of this study. The concept of cognitive appraisal (evaluation of a transaction between the person and the environment; Lazarus & Folkman, 1984) was the basis for viewing perceived expectation discrepancy as cognitive appraisal which determines the stressful nature of a series of transactions between the person and the environment. The role of culture was critical in this study, as one's beliefs and values are thought to have an impact on the cognitive appraisal process (Lazarus & Folkman). Two models with and without cultural context and cultural values as indirect predictors of psychological distress via the perceived discrepancy were hypothesized.

Structural Equation Modeling (SEM) was chosen as the method of analysis for this study as it allows the researcher to examine the relationships among variables simultaneously, including the direct and indirect effects. As hypothesized, perceived discrepancy was found to be a significant predictor of psychological distress. On the other hand, perceived parental expectation was not found to be a significant predictor of psychological distress. Cultural values were found to have a significant indirect effect on psychological distress via perceived discrepancy.

### *Structural Models*

The Maximum Likelihood (ML) – Robust test statistic was chosen to estimate the hypothesized model as ML-Robust provides the researcher with a test statistic that assumes non-normality of the data. Some of the cultural context variables such as the number of ethnic organizations students belong to had extreme non-normality. Further, when the measurement model was tested, the cultural context indicators had poor loadings on the cultural context latent variable. Furthermore, EQS indicated that two variables that were categorical (ethnic composition of childhood community and ethnic composition of campus community) were problematic. Thus, the cultural context latent variable was dropped from the hypothesized model, which became a final model. The measurement model of this final model achieved a good fit to the data.

### *Research Questions*

*Overview.* Research question one sought to examine if a perceived discrepancy in parental expectations and self- performance mediated the relationship between perceived parental expectations and psychological distress. Research question two sought to examine if the cultural context and cultural values (students' adherence to Asian values) had an indirect impact on psychological distress via perceived parental expectations discrepancy. An attempt to examine these two questions was made by comparing two models. The role of cultural context was not examined due to the problems indicated previously. Bivariate correlations indicated, however, that the generation status of students had a significant positive correlation with perceived parental expectation and the perceived discrepancy. A revised structural model (final model) was compared against an

alternative model to examine the role of cultural values in the relationship among perceived expectation, perceived discrepancy, and psychological distress.

*Final Model.* The final model included perceived parental expectations discrepancy, perceived parental expectations, and cultural values as independent variables and psychological distress as a dependent variable. In the final model, perceived expectation discrepancy was proposed to mediate the relationship between perceived parental expectations and psychological distress. The cultural values variable was also proposed to have indirect impact on psychological distress via perceived expectations discrepancy. This model had an appropriate fit to the observed data. All paths except the path between parental expectations and psychological distress were significant at the  $p < .05$  level. As hypothesized, perceived parental expectations discrepancy mediated the relationship between parental expectations and psychological distress. Contrary to expectations, there was no direct impact of parental expectations on psychological distress. Although bivariate correlations showed a positive significant relationship between perceived parental expectations and one of the psychological distress indicators, this relationship was non-significant when it was tested with the presence of perceived discrepancy in SEM.

On the other hand, and as hypothesized, the cultural values were strongly and positively related to perceived discrepancy and had an indirect impact on psychological distress via perceived discrepancy. This indicated that higher adherence to Asian values among students was associated with a higher perceived discrepancy between parental expectations and one's performance, and in turn contributed to higher psychological distress.

*Alternative Model.* The alternative model was compared with the final model in order to examine the role of cultural values in the model of parental expectation, perceived discrepancy, and psychological distress. The alternative model without the cultural value latent variable had a slightly better fit to the data than the final model with the cultural values variable. However, because there was only a slight improvement in the fit and further, because the role of cultural values did play a role in the relationship between parental expectation, perceived discrepancy, and psychological distress, the final model was retained as it seems to make a more meaningful contribution to the field of study than the alternative model.

#### *Implications for Theory*

*Role of perceived parental expectations discrepancy.* Consistent with the literature reviewed (Aldwin & Greenberger, 1987; Wang, 1997), the perceived discrepancy between parental expectations and self-performance was the stronger predictor of psychological distress than perceived parental expectation. Although perceived parental expectation indicated a positive significant relationship with some indicators of psychological distress when conducting bivariate correlations, such significance was not evident in the presence of perceived discrepancy in SEM analysis. This is somewhat consistent with the finding by Tomiki (2001) in which parental pressure was significantly related to anxiety and depression in the correlation analysis yet was reduced to nonsignificance in regression analysis. The present study contributed to clarifying the mechanism behind the relationship between parental expectations and psychological distress by including perceived discrepancy as a mediator.

When Chinese American students perceive high parental expectations, they are more likely to perceive discrepancy between parental expectations and their performance. It is the perceived discrepancy, however, not the perceived expectations per se, that contributes to levels of psychological stress among the sample. Thus, there exists the possibility that students perceive very high parental expectations but do not necessarily get distressed because they believe they are meeting their parents' expectations. Interestingly, bivariate correlations revealed that lower GPA was significantly related to perceived discrepancy as well as to psychological distress. Thus, it may be that for some students there is a gap between perceived parental expectations and actual performance.

The results of this study are consistent with the idea of discrepancy as the maladaptive aspect of perfectionism. Slaney, Rice, Mobley, Trippi, and Ashby (2001) proposed that the perceived discrepancy between individuals' standards and their perceived performance, especially their academic performance, is integral to distress. Slaney et al.'s contention seems to apply to the discrepancy between perceived parental expectation and students' own perceived performance. As Lazarus and Folkman (1994) suggests, how the person evaluates the circumstances (cognitive appraisal) is influenced by one's cultural belief and values. Because meeting familial and parental needs and expectations is an integral part of traditional Asian values, not being able to meet parental expectations could be more stressful (which is against their Asian values) than perceiving parental expectations (which is commonly accepted among Asian cultures).

This study implies that parental expectations discrepancy could play an integral role in maladaptive perfectionism, at least for Chinese American students. The concept of discrepancy-based perfectionism was found to be helpful in understanding the predictors

of psychological distress among Chinese American undergraduates. Given the importance of family in Asian cultures, it would be interesting to examine the relationship of two types of discrepancy, self-based discrepancy (i.e., perceived discrepancy between one's own high standards and perceived self-performance) and parents-based discrepancy (i.e., perceived discrepancy between parents' expectations and perceived self-performance) to mental health of Asian American students.

*Role of cultural values.* Another interesting finding of this study was that Chinese American students' adherence to Asian values influenced the level of discrepancy they perceived between perceived parental expectations and their own performance. The level of their adherence to Asian values indirectly predicted the level of psychological distress via perceived discrepancy. As is the case with many other Asian families, in Chinese families, one of the child's roles in the family is to meet familial expectations. Because it is considered an obligation to meet parental expectations, children may be sensitive to evaluating themselves in regard to whether they are meeting their parents' expectations and whether they are being good children.

Furthermore, students in East Asian contexts are socialized to attend selectively to negative aspects of themselves that are seen as improvable (Heine et al., 2001). According to Heine et al., this means that people feel motivated to work hard to correct the negative aspects of themselves and to improve themselves to be the ones expected by others from their in-group. Thus, whereas perceived expectation discrepancy can be a motivating factor for students to achieve better and to be better daughters/sons for their parents, such discrepancy can create distress when they feel they cannot meet their parental expectations despite their hard work.

Interestingly, according to the bivariate correlations, students' cultural values had a positive significant correlation with four indicators of psychological distress (i.e., DASS subscales and somatization items). This indicates the possibility of the cultural values as direct predictor of psychological distress, rather than indirect predictor. Given that the most participants were first- and second-generation Chinese Americans, there is a possibility that adhering to traditional values can create distress when their values are not necessarily endorsed by the majority culture.

*Role of cultural context.* The basis for examining the role of cultural context in this study was triggered by some of the cross-cultural studies (e.g., Chang, 1998; Crystal et al., 1994) indicating that parental expectation itself is not a significant predictor of distress for Asian students as much as for other ethnic groups such as White students. Unfortunately, I could not test the role of cultural context using SEM.

It became evident from the bivariate correlations, however, that students' generation status, which is one of the cultural context variables, was significantly associated with the level of perceived parental expectations ( $r = -.22, p < .01$ ) and perceived discrepancy ( $r = -.15, p < .05$ ). Students in a lower generational status (e.g., 1<sup>st</sup> generation) tended to perceive higher parental expectations and discrepancy between parental expectation and self-performance. Part of this phenomenon could be explained by students' tendency to have higher adherence to Asian values, a significant predictor of perceived parental expectation and perceived discrepancy.

### *Limitations*

Several limitations of this study should be noted. First, generalizability of this study may be limited due to potential bias inherent to the sampling method. Although the

attempt was made to include as many students as possible from different areas of the U.S. through snowball sampling and usage of national student and professional electronic mailing lists, students on the East Coast and West Coast may have been more likely to participate because of my personal connections. Another potential sample bias is that students who participated in this study may have had certain characteristics that would lead them to be more interested in participating in this kind of study with a specific ethnic group.

Second, operationalizing cultural context was a challenge. One factor that may have led to this challenge was lack of diversity among the sample with certain cultural context indicators. For example, most of the participants were either first- or second-generation in the U.S., thereby making the SEM analysis difficult due to limited sample size in other categories. Furthermore, it is difficult to capture the complex and fluid nature of some of the cultural contexts. For example, a few students indicated growing up in different kinds of ethnic neighborhoods including predominantly White communities. There is a possibility that more students may have grown up this way but did not specify this in the survey. When a researcher uses a quantitative method such as this, rich contextual information tends to get lost. In fact, I needed to dichotomize the ethnic composition of childhood and campus community to predominantly White and to non-White so that I could meaningfully include this variable in the SEM. However, such dichotomization does not fully represent the complex picture of describing one's campus or childhood community.

Third, the internal consistency of the measure of somatization created for this study was marginal (coefficient alpha = .67) and no validity information is available. A



measure of somatization was created because a brief measure of somatization used with Asian Americans could not be identified. Though this measure of somatization was retained in the model, these results must be viewed as tentative due to the lack of psychometric properties for this measure.

Fourth, all variables in this study are represented by self-report data. Particularly because this study involved measures of psychological distress, there may be a possibility that students underreport their symptoms of depression and anxiety. Students may have reported lower psychological distress due to the stigma and shame associated with mental illness. Furthermore, Chinese Americans tend to express their emotional problems in somatic complaints, partly to avoid shame and protect the family's name from the stigma of mental illness (Lee, 1996). Given that many students in this study were first- and second-generation, stigma associated with mental health may have impacted the way they responded to some of the items on the DASS.

Another factor that may have affected the participants' reporting is the fact that this website ran from late spring through early summer. Such factors as finals and summer break could have impacted the result.

#### *Implications for Future Research*

Replication of this study may be needed with students who are not represented in this study. Given the diversity within the Asian American community, it would be important for this type of study to be replicated with other Asian ethnic groups. Although Chinese American undergraduates were chosen in this study because they are the biggest ethnic group among Asian American subgroups in the U.S., there are vast cultural differences within Asian American groups (e.g., Okazaki & Hall, 2002; Uba, 1994).

Future research may want to compare structural models by cultural context to see the strengths of structural paths. For example, it would be meaningful to examine the four-factor or three-factor models by generation, by ethnic composition of campus community, and by ethnic composition of childhood community. This would be one way to examine the role of cultural context in this kind of study. This would allow researchers to see if, for example, the structural paths between cultural values, perceived discrepancy, and psychological distress is stronger or weaker for students who grew up in non-White communities than those who grew up in predominantly White communities. Of course, this would require a much larger sample size than 200, which can be a challenge. Furthermore, the number of Asian students does differ by school. Ethnically diverse universities do have more Asian students representation than predominantly White universities, which naturally causes the challenge of collecting a large enough sample from predominantly White universities.

Another way to incorporate the rich contextual information could be to combine a quantitative study with a qualitative study by providing participants with space to share their responses. For example, some participants in this study shared the fluidity of the childhood community they grew up in a free response space given in the survey. It may be useful to provide more space for participants to share how they feel about their parents' expectations or comments about the survey. Liu's (1997/1998) qualitative study as well as one comment I received from one participant indicated that some students perceive parental expectations as an act of love and accepting them despite the distress they experienced. This same participant indicated that he/she may be quite distressed because of his/her parents' high expectations but he/she does not want his/her parents to

have done anything differently. This kind of complex layers underneath what may appear numerically can only be captured qualitatively. Adding a qualitative portion in the study can incorporate this kind of rich information best.

The present study indicated that perfectionism literature sheds lights to the mechanism behind the psychological impacts of high parental expectations on Chinese American undergraduates. The concept of discrepancy as a maladaptive aspect of perfectionism (e.g., Slaney et al., 2001) is useful in understanding why perceived parental expectations were found to be a stronger predictor of psychological distress than high parental expectations among the participants in this study. Future research may want to examine the role of parental expectations discrepancy in perfectionism among Asian Americans. For example, it may be helpful to examine the relationships between perfectionism, parental expectations discrepancy, and psychological distress, given the importance of meeting family expectations in traditional Asian cultures.

#### *Implications for Practice*

As described in the first chapter, it is often considered among the general public as well as within the psychology field that the high parental expectations seen in Asian parents can be the cause for students' psychological distress (e.g., Pang, 1991, Toupin & Son, 1991). However, such a direct path may not truly reflect the complexity behind how Chinese American students experience such parental expectations. Given that the importance of academic success is often deeply ingrained in the importance of meeting familial obligations among Asian traditional culture, it is important for practitioners to understand parental achievement pressure in cultural context.

As described previously, some Chinese American students might be accepting of high parental expectations as an act of love while they may be quite distressed by such expectations. It is important for practitioners to validate how students feel about high parental expectations with the understanding of the role family plays in Asian culture. At the same time, while high parental expectations and pressures may be well perceived among Chinese American students, it is essential to explore how much they feel they are meeting their familial or parental expectations. Because perceived discrepancy between parental expectations and perceived self-performance is a stronger predictor of psychological distress than parental expectations alone, exploration of such discrepancy can help students and practitioners understand how discrepancy can contribute to students' mental health. In exploring such discrepancy, it is important for practitioners to be aware of the role of cultural values.

It was found in this study that students' adherence to Asian values is an important predictor of how much discrepancy students perceive between parental expectations and self-performance. Given the importance placed upon the act of meeting obligations and expectations of family members in Chinese culture, practitioners need to understand the students' experiences in the context of family. Although the issue of autonomy and separation-individuation is often important to discuss, particularly in psychodynamic therapy, practitioners would need to be mindful of how such work may potentially lead the students to experience cultural clash internally when meeting family needs is an integral part of self. Thus, practitioners need to be mindful of whether the way they work with these students is sensitive to their cultural values. It may be helpful for practitioners to utilize the AVS or explore some items on the AVS in order to assess the students'

adherence to traditional Asian values. In fact, the AVS was recently revised to be shorter (AVS-R; Kim & Hong, 2004) than the AVS. Incorporating these measures in counseling practice could be one way to bridge the gap between the research and practice.

Feeling of shame and loss of face associated with not meeting familial and parental expectations (e.g., Yeh & Huang, 1996) are also important factors to be worked through in therapy. While perceiving parental expectations alone may not invoke any feeling of shame among students, not meeting their parents' expectations might. Thus, understanding how these two constructs (perceived parental expectation and perceived discrepancy) may appear similar but operate differently is an important task for practitioners. Furthermore, as indicated in this study, many Chinese American undergraduates do finance their college education through parental support. Given that Asian parents, particularly immigrant parents, sacrifice themselves for their children's education (e.g., Liu, 1997/1998), a sense of guilt and shame may be exacerbated for students when they feel they are not meeting their family expectations.

Interventions such as cognitive therapy may be useful in helping students evaluate the discrepancy students perceive between parental expectations and their own performance more realistically and objectively. On the other hand, for those students who adhere to traditional values, cognitive interventions may further exacerbate the inner conflict, as their evaluation of their discrepancy may reflect the cultural reality. For example, it may be culturally realistic to think that one's parents will lose face to their community if children do not do well academically. It may be useful for the practitioners to help students examine the consequences and benefits of meeting parents' expectations and not meeting them. In fact, as indicated in this study, students with lower GPAs may

perceive higher discrepancy. Evaluating the nature of discrepancy would help the practitioners coordinate resources, such as providing or referring them for academic support service.

### *Conclusion*

In conclusion, this study was the first attempt in the United States to examine the relationship among parental expectations, parental expectations discrepancy, and psychological distress systematically among Chinese American college students. The present study supported the role of parental expectation discrepancy as the mediator between perceived parental expectations and psychological distress. The significance found between parental expectations and psychological distress in bivariate correlations became non-significant in the presence of parental expectations discrepancy in SEM analysis.

Furthermore, this study attempted to systematically examine the role of cultural values and cultural context, and found that the cultural values play a critical role in understanding the relationship between parental expectations and perceived discrepancy. Although I could not examine the role of cultural context using SEM, bivariate correlations found that the generational status of students predicts the level of parental expectation discrepancy as well as parental expectations. Thus, this study indicated the need for culture to be incorporated in future studies of parental expectations and discrepancies as well as counseling practice with Chinese American college students.

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## Appendix A

### Recruitment Notice

Hello. My name is Eriko Kobayashi, and I am a doctoral student working on my dissertation in the Counseling Psychology Program at Penn State University.

If you are 18 years of age or older, currently have an undergraduate status, identify yourself as US citizens or permanent resident of Chinese descent (e.g., Chinese American, Taiwanese American), please consider participating in my study on parental expectations for achievement and Chinese American students. You will have the opportunity to enter a drawing and receive one of the four \$25 gift certificates.

If you choose to participate in this study, please click on [www.psychdata.com](http://www.psychdata.com) and enter this survey number - **8348**. The survey will take approximately 15-20 minutes. Your answers will be anonymous and data will be encrypted when transmitted. Confidentiality will be maintained to the degree permitted by the technology used. If you decided to participate the random drawing, you will be directed to another website and asked to provide your e-mail address. However, no link will exist between your survey responses and your email address. Thus, the confidentiality of your registration in drawing as well as research data will be protected.

Please pass this announcement on to Chinese American undergraduates that you may know and who may be interested in participating.

This study was reviewed and approved by the Social Science Institutional Review Board at The Pennsylvania State University (#20257, phone 814-865-1775). Your participation in this study is voluntary and will be used for research purposes only, which means you can stop at any time without penalty to you. However, lack of completion of the survey will make you ineligible to participate in random drawing and a chance to win one of the gift certificates. If you have any questions or comments, you can contact me, Eriko Kobayashi, at Penn State University through e-mail at [euk106@psu.edu](mailto:euk106@psu.edu), or my advisor, Beverly Vandiver at [bjv3@psu.edu](mailto:bjv3@psu.edu).

## Appendix B

### Recruitment Notice (for pilot validation study)

Hello. My name is Eriko Kobayashi, and I am a doctoral student working on my dissertation in the Counseling Psychology Program at Penn State University.

If you are 18 years of age or older, currently have an undergraduate or graduate status, identify yourself as US citizens or permanent resident of Chinese descent (e.g., Chinese American, Taiwanese American), please consider participating in my study on parental expectations for achievement and Chinese American students. You will have the opportunity to enter a drawing and receive one **\$25** gift certificate, as a thank you for participating in this study.

If you choose to participate in this study, please click on [www.psychdata.net](http://www.psychdata.net) and enter this survey number - **8217**. The survey will take only 5 -10 minutes. Your answers will be anonymous and data will be encrypted when transmitted. Confidentiality will be maintained to the degree permitted by the technology used. If you decided to participate the random drawing, you will be directed to another website and asked to provide your e-mail address. However, no link will exist between your survey responses and your email address. Thus, the confidentiality of your registration in random drawing as well as research data will be protected.

This study was reviewed and approved by the Social Science Institutional Review Board at The Pennsylvania State University (#20257, phone 814-865-1775). Your participation in this study is voluntary and will be used for research purposes only, which means you can stop at any time without penalty to you. However, lack of completion of the survey will make you ineligible to participate in a random drawing and a chance to win the gift certificate. If you have any questions or comments, you can contact me, Eriko Kobayashi, at Penn State University through e-mail at [euk106@psu.edu](mailto:euk106@psu.edu), or my advisor, Beverly Vandiver at [bjv3@psu.edu](mailto:bjv3@psu.edu).







## Appendix E

### Informed Consent

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

**This informed consent form was reviewed and approved by the Social Science Institutional Review Board at the Pennsylvania State University on February 20, 2005. This approval will expire on February 6, 2006. (IRB# 20257 – J. Mathieu)**

**Title of Project:** Parental Expectations among Chinese American College Students

**Principal Investigator:** Eriko Kobayashi, Doctoral student  
Counseling Center (MC333)  
1200 West Harrison St.  
Chicago, IL 60607  
(312) 996-3490; [euk106@psu.edu](mailto:euk106@psu.edu)

**Advisor:** Beverly J. Vandiver, Ph.D.  
125 CEDAR Building, Penn State University  
University Park, PA 16802  
(814) 865-1881; [bjv3@psu.edu](mailto:bjv3@psu.edu)

1. **Purpose of the study:** The purpose of the study is to understand the factors that influence Chinese/Taiwanese American undergraduate 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 psychosocial variables.
3. **Discomforts and Risks:** There are no 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 the questions, you may contact the counseling center in your university.
4. **Benefits:** Your participation will help researchers and mental health clinicians increase knowledge about factors that influence Chinese American students' mental health. The study also may help mental health clinicians provide better services for

Chinese American students.

5. **Duration:** It will take about 15-20 minutes to complete the questions.
6. **Statement of Confidentiality:** No personal identities will be collected. The data will be kept in the principal investigator's personal computer at home and will be destroyed 10 years after the data collection. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project. 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.
7. **Right to ask questions:** You can ask questions about the research. Eriko Kobayashi, a Ph.D. student at Penn State, is conducting this research for her dissertation and can be reached at (773) 935-4971. Her advisor is Dr. Beverly Vandiver and can be reached at (814) 865-1881. You may also contact the Office for Research Protections at (814) 865-1775 at PSU, if you have any questions about the rights of research participants.
8. **Compensation:** You can participate in a gift-certificate drawing. Once you have completed the survey, you will be directed to another website to sign up for the random drawing and asked to provide your email address. However, there is no linkage between your contact information and your responses to this study. If you are one of the four participants who won the gift-certificate, you will be notified via e-mail you provided and receive a gift-certificate in the amount of \$25.
9. **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 to participate in the random drawing for one of the gift certificates. You can request the results of the study by e-mailing Eriko Kobayashi at [euk106@psu.edu](mailto:euk106@psu.edu). Please answer each question to the best of your ability.

You can 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, identify yourself as a US citizen or permanent resident of Chinese-descent or Chinese/Taiwanese American, and must currently be enrolled in college as an undergraduate.

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

## Appendix F

### Informed Consent (for pilot study)

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

This informed consent form was reviewed and approved by the Social Science Institutional Review Board at the Pennsylvania State University on February 20, 2005. This approval will expire on February 6, 2006. (IRB# 20257 – J. Mathieu)

**Title of Project:** Parental Expectations among Chinese American College Students

**Principal Investigator:** Eriko Kobayashi, Doctoral student  
Counseling Center (MC333)  
1200 West Harrison St.  
Chicago, IL 60607  
(312) 996-3490; [euk106@psu.edu](mailto:euk106@psu.edu)

**Advisor:** Beverly J. Vandiver, Ph.D.  
125 CEDAR Building, Penn State University  
University Park, PA 16802  
(814) 865-1881; [bjv3@psu.edu](mailto:bjv3@psu.edu)

- 1. Purpose of the study:** The purpose of the study is to understand the factors that influence Chinese/Taiwanese American undergraduate 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 psychosocial variables.
- 3. Discomforts and Risks:** There are no 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 the questions, you may contact the counseling center in your university.
- 4. Benefits:** Your participation will help researchers and mental health clinicians increase knowledge about factors that influence Chinese American students'

mental health. The study also may help mental health clinicians provide better services for Chinese American students.

5. **Duration:** It will take about 5-10 minutes to complete the questions.
6. **Statement of Confidentiality:** No personal identities will be collected. The data will be kept in the principal investigator's personal computer at home and will be destroyed 10 years after the data collection. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project. 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.
7. **Right to Ask Questions:** You can ask questions about the research. Contact Eriko Kobayashi at (773) 935-4971 with questions. Her advisor is Dr. Beverly Vandiver and can be reached at (814) 865-1881. You may also contact the Office for Research Protections at (814) 865-1775 at PSU, if you have any questions about the rights of research participants.
8. **Compensation:** You can participate in a gift-certificate drawing. Once you have completed the survey, you will be directed to another website to sign up for the random drawing and asked to provide your email address. However, there is no linkage between your contact information and your responses to this study. If you won the gift-certificate, you will be notified via e-mail you provided and receive a gift-certificate in the amount of \$25.
9. **Voluntary Participation:** Your participation is strictly voluntary. You can choose not to answer certain questions. 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 to participate in the random drawing for one of the gift certificates. You can request the results of the study by e-mailing Eriko Kobayashi at [euk106@psu.edu](mailto:euk106@psu.edu).

Completion and submission of the survey implies your consent to participate in this research.

You must be 18 years of age or older, identify yourself as a US citizen or permanent resident of Chinese-descent or Chinese/Taiwanese American, and must currently be enrolled in college as an undergraduate or graduate.

## **Appendix G**

### **Debriefing Statement**

Thank you very much for completing this survey! In case you experience emotional discomfort or distress, please contact your university's health/counseling center. Please contact us at the following should you have any questions.

**Principal Investigator:** Eriko Kobayashi, Doctoral student  
Counseling Center (MC333)  
1200 West Harrison St.  
Chicago, IL 60607  
(312) 996-3490; [euk106@psu.edu](mailto:euk106@psu.edu)

**Advisor:** Beverly J. Vandiver, Ph.D  
125 CEDAR Building, Penn State University  
University Park, PA 16802  
(814) 865-1881; [bjv3@psu.edu](mailto:bjv3@psu.edu)

If you would like to participate in a random drawing to win one of four \$25 gift certificates, please click on the "continue" button below.

## **Appendix H**

### **Random Drawing**

Thank you again for completing this survey.

If you would like to participate in a random drawing to win a gift certificate, please fill out the below information. Your e-mail address will NOT be matched with your survey to ensure confidentiality. I will contact you via e-mail if you won the gift certificate.

**Appendix I****Demographic Questionnaire**

1. Age \_\_\_\_\_
2. Gender: M F
3. Generation status in US (select only one):
  - a. First
  - b. Second
  - c. Third
  - d. Fourth
  - e. Fifth
4. National origin (select one that most applies):
  - a. Chinese
  - b. Taiwanese
  - c. Mixed: please indicate \_\_\_\_\_
  - d. Biracial or Multiracial: please indicate \_\_\_\_\_
5. Have you been adopted?
  - a. Yes
  - b. No
6. Year in school (select one that most applies):
  - a. Freshman
  - b. Sophomore
  - c. Junior
  - d. Senior
  - e. Fifth Year
  - f. Other: \_\_\_\_\_
7. Major in school: \_\_\_\_\_
8. Type of school
  - a. Public university
  - b. Private university
  - c. Community college
9. Location of school (please indicate state your school is located in)
  - a. Alabama
  - b. Alaska
  - c. Arizona
  - d. Arkansas
  - e. California
  - f. Colorado
  - g. Connecticut
  - h. Delaware

- i. District of Columbia (Washington DC)
- j. Florida
- k. Georgia
- l. Hawaii
- m. Idaho
- n. Illinois
- o. Indiana
- p. Iowa
- q. Kansas
- r. Kentucky
- s. Louisiana
- t. Maine
- u. Maryland
- v. Massachusetts
- w. Michigan
- x. Minnesota
- y. Mississippi
- z. Missouri
- aa. Montana
- bb. Nebraska
- cc. Nevada
- dd. New Hampshire
- ee. New Jersey
- ff. New Mexico
- gg. New York
- hh. North Carolina
- ii. North Dakota
- jj. Ohio
- kk. Oklahoma
- ll. Oregon
- mm. Pennsylvania
- nn. Rhode Island
- oo. South Carolina
- pp. South Dakota
- qq. Tennessee
- rr. Texas
- ss. Utah
- tt. Vermont
- uu. Virginia
- vv. Washington
- ww. West Virginia
- xx. Wisconsin
- yy. Wyoming

10. Financing for Education (**select all that apply**):



- a. Parental support
- b. Relatives' support
- c. Student loans
- d. Work-study program
- e. Financial aid/scholarship
- f. Self-pay via work or savings

11. Marital status (select one):

- a. Single
- b. Married
- c. Separated
- d. Divorced
- e. Widowed

12. What is your overall GPA? \_\_\_\_\_

13. How many ethnic organizations/groups do you belong to on or off campus?  
\_\_\_\_\_

14. How many organizations/groups do you belong to on or off campus? \_\_\_\_\_

15. Select one of the following choices that best describes the community you grew up in:

- a. Predominantly White
- b. Predominantly Asian
- c. Ethnically mixed
- d. None of the above: please indicate \_\_\_\_\_

16. Select of the following choices that best describes your campus community:

- a. Predominantly White
- b. Predominantly Asian
- c. Ethnically mixed
- d. None of the above

17. How many same ethnic friends (e.g., Chinese Americans) do you have? \_\_\_\_\_

18. Select one of the following choices that best corresponds to your agreement with.

1) When I am under stress, I tend to have headaches

- 1 = Agree
- 2 = Slightly Agree
- 3 = Neither Agree or Disagree
- 4 = Slightly Disagree
- 5 = Disagree

2) When I am under stress, I tend to have stomach aches/digestive problems

1 = Agree

2 = Slightly Agree

3 = Neither Agree or Disagree

4 = Slightly Disagree

5 = Disagree

3) When I am under stress, I tend to have muscle tension

1 = Agree

2 = Slightly Agree

3 = Neither Agree or Disagree

4 = Slightly Disagree

5 = Disagree

4) When I am under stress, I tend to have back problems.

1 = Agree

2 = Slightly Agree

3 = Neither Agree or Disagree

4 = Slightly Disagree

5 = Disagree

18. What would best describe your home area?

a. Urban

b. Suburb

c. Rural

## Appendix J

### Parental Expectations Discrepancy (A modified Discrepancy subscale of the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001))

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 often feel frustrated because I can't meet my parents' goals.
2. My best just never seems to be good enough for my parents.
3. I rarely live up to my parents' high standards.
4. Doing my best never seems to be enough for my parents.
5. My parents are never satisfied with my accomplishments.
6. I often worry about not measuring up to my parents' expectations.
7. My performance rarely measures up to my parents' standards.
8. My parents are not satisfied even when I know I have done my best.
9. I am seldom able to meet my parents' high standards of performance.
10. My parents are hardly ever satisfied with my performance.
11. My parents hardly ever feel that what I've done is good enough.
12. My parents often feel disappointment after completing a task because they know I could have done better.

**Appendix K****Parental Expectations  
(Frost, Marten, Lahart, & Rosenblate, 1990)**

Directions: Please click on the number that best corresponds to your agreement with each statement below. Use this rating system

1

2

3

4

5

Strongly Disagree

Strongly Agree

1. My parents set very high standards for me.
2. My parents wanted me to be the best at everything.
3. Only outstanding performance is good enough in my family.
4. My parents have expected excellence from me.
5. My parents have always had higher expectations for my future than I have.

## Appendix L

### Asian Values Scale (Kim, Atkinson, & Yang, 1999)

Directions: Use the scale below to indicate the extent to which you agree with the value expressed in each statement.

- 1 = Strongly Disagree
- 2 = Moderately Disagree
- 3 = Mildly Disagree
- 4 = Neither Agree nor Disagree
- 5 = Mildly Agree
- 6 = Moderately Agree
- 7 = Strongly Agree

1. Educational failure does not bring shame to the family.
2. One should not deviate from familial and social norms.
3. Children should not place their parents in retirement homes.
4. One need not focus all energies on one's studies.
5. One should be discouraged from talking about one's accomplishments.
6. One should not be boastful.
7. Younger persons should be able to confront their elders.
8. When one receives a gift, one should reciprocate with a gift of equal or greater value.
9. One need not follow one's family's and the society's norms.
10. One need not achieve academically in order to make one's parents proud.
11. One need not minimize or depreciate one's own achievements.
12. One should consider the needs of other before considering one's own needs.
13. Educational and career achievement need not be one's top priority.
14. One should think about one's group before oneself.
15. One should be able to question a person in an authority position.
16. Modesty is an important quality for a person.
17. One's achievements should be viewed as family's achievements.
18. Elders may not have more wisdom than younger persons.
19. One should avoid bringing displeasure to one's ancestors.
20. One need not conform to one's family's and the society's expectations.
21. One should have sufficient inner resources to resolve emotional problems.
22. Parental love should be implicitly understood and not openly expressed.
23. The worst thing one can do is to bring disgrace to one's family reputation.
24. One need not remain reserved and tranquil.
25. The ability to control one's emotions is a sign of strength.
26. One should be humble and modest.
27. Family's reputation is not the primary social concern.
28. One need not be able to resolve psychological problems on one's own.

29. Following familial and social expectations are important.
30. One should not inconvenience others.
31. Occupational failure does not bring shame to the family.
32. One need not follow the role expectations (gender, family hierarchy) of one's family.
33. One should not make waves.
34. Children need not take care of their parents when the parents become unable to take care of themselves.
35. One need not control one's expression of emotions.
36. One's family need not be the main source of trust and dependence.

## Appendix M

### Depression Anxiety Stress Scale – 21 (DASS-21; Lovibond & Lovibond, 1995)

Directions: Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 = Did not apply to me at all
- 1 = Applied to me to some degree, or some of the time
- 2 = Applied to me to a considerable degree, or a good part of time
- 3 = Applied to me very much, or most of the time

1. I found it hard to wind down
2. I was aware of dryness of my mouth
3. I couldn't seem to experience any positive feeling at all
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)
5. I found it difficult to work up the initiative to do things
6. I tended to over-react to situations
7. I experienced trembling (e.g., in the hands)
8. I felt that I was using a lot of nervous energy
9. I was worried about situations in which I might panic and make a fool of myself
10. I felt that I had nothing to look forward to
11. I found myself getting agitated
12. I found it difficult to relax
13. I felt down-hearted and blue
14. I was intolerant of anything that kept me from getting on with what I was doing
15. I felt I was close to panic
16. I was unable to become enthusiastic about anything
17. I felt I wasn't worth much as a person
18. I felt that I was rather touchy
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)
20. I felt scared without any good reason
21. I felt that life was meaningless

## Appendix N

### Almost Perfect Scale - Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) for pilot study

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.

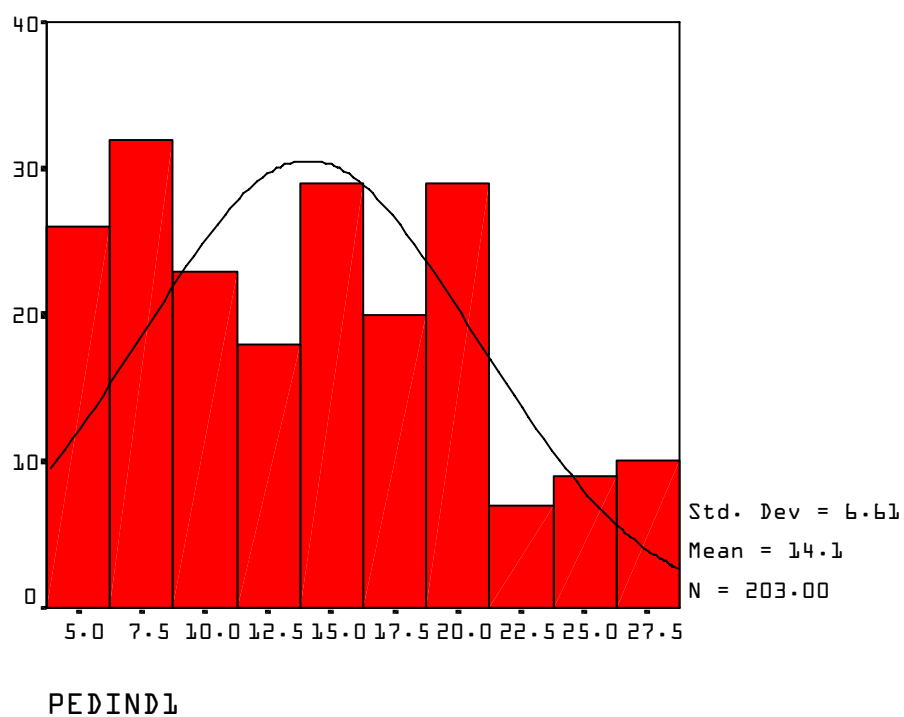
Respond to each of the items using the scale below to describe your degree of agreement with each item.

- 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.

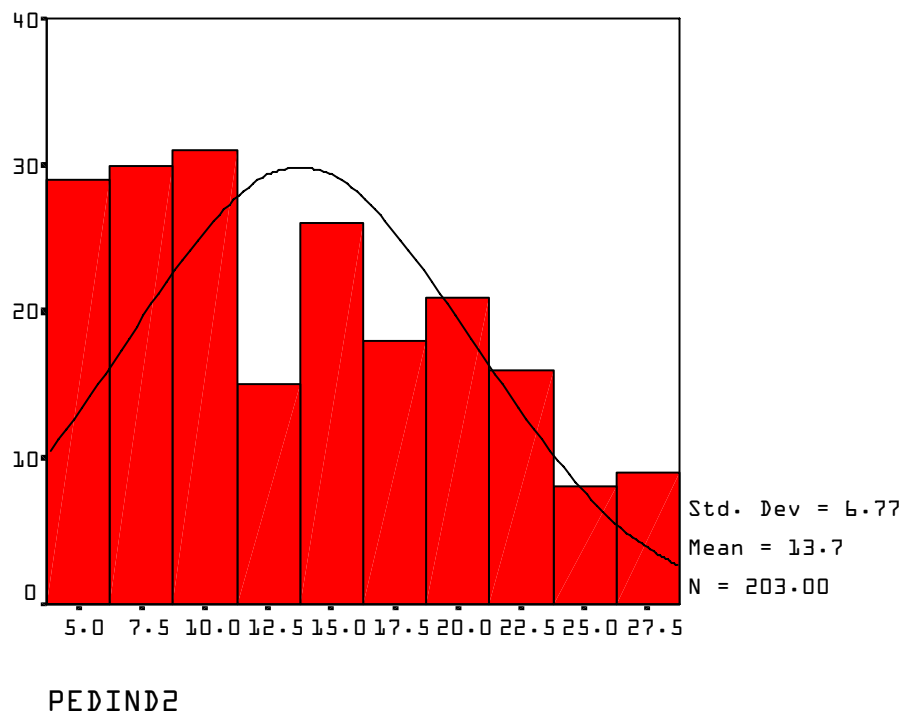


**Appendix O**  
**Distribution of Data for all indicators**



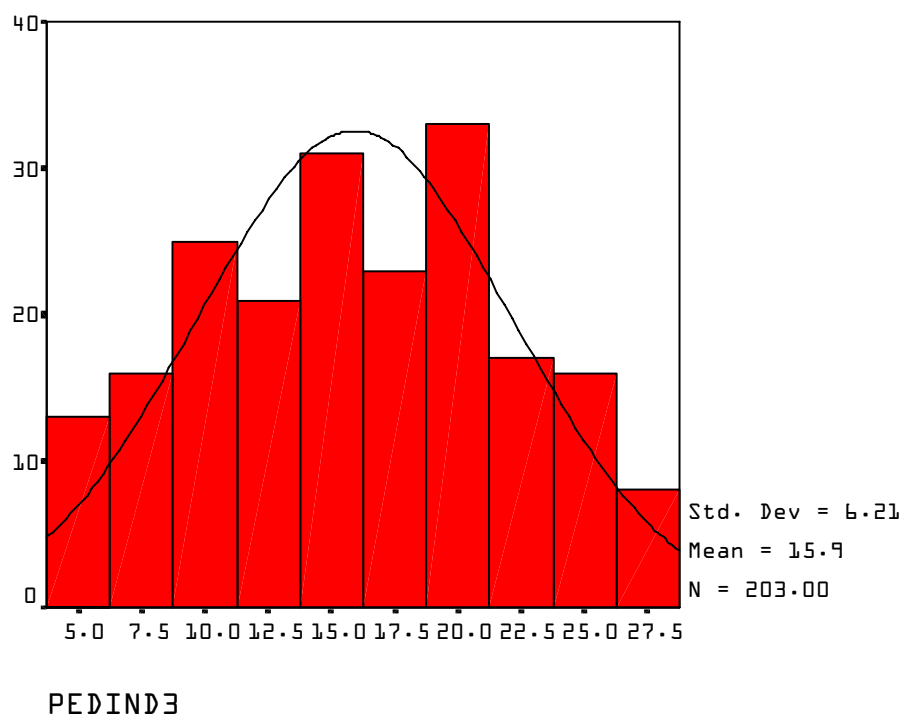
*Figure 10.* Distribution of Parental Expectation Discrepancy 1

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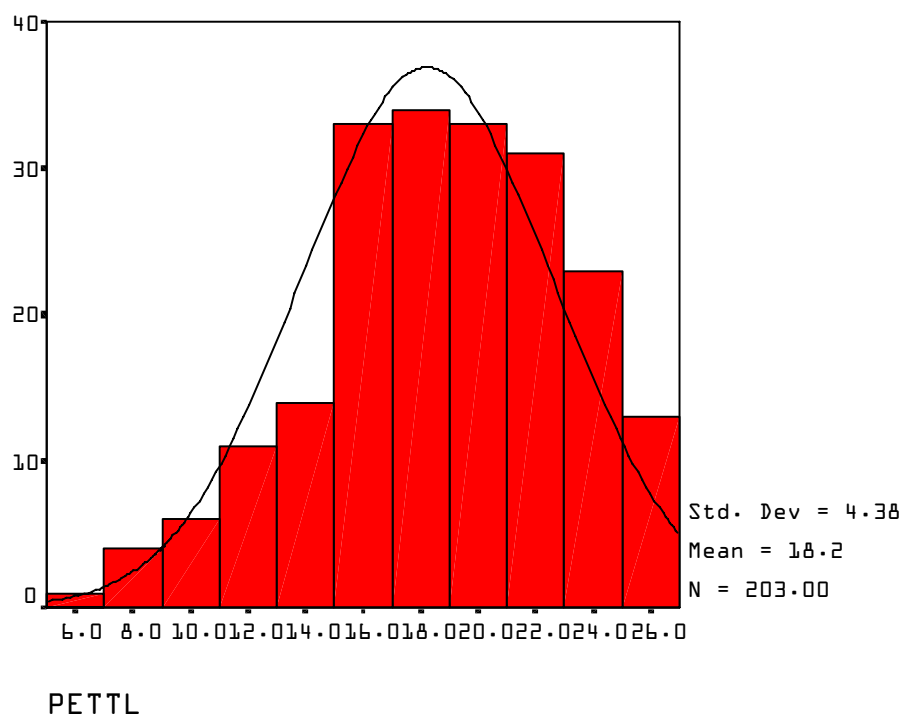
*Figure 20.* Distribution of Parental Expectation Discrepancy 2

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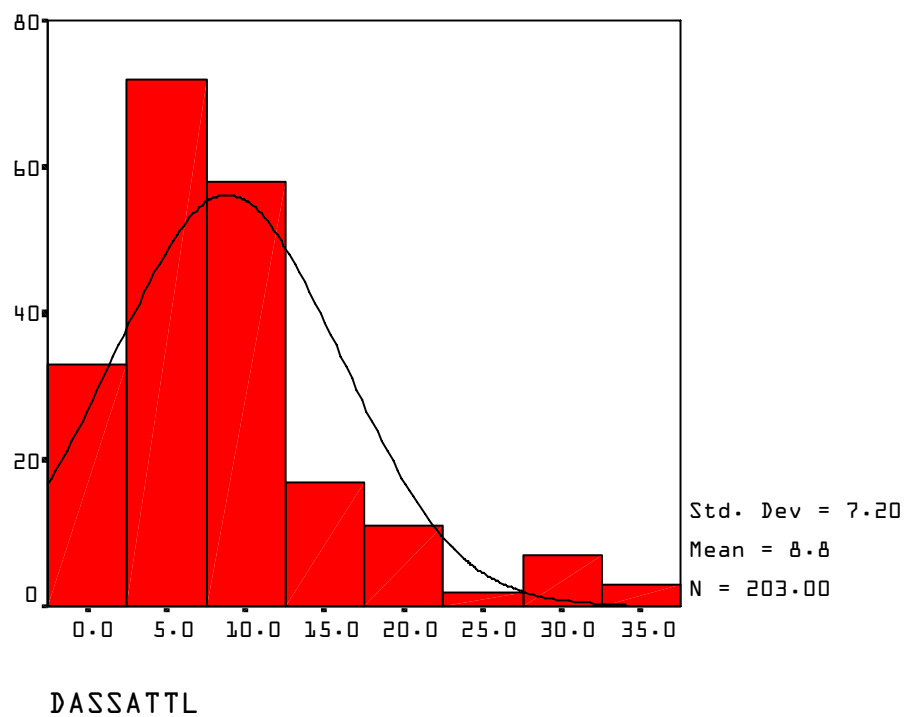
*Figure 30.* Distribution of Parental Expectation Discrepancy 3

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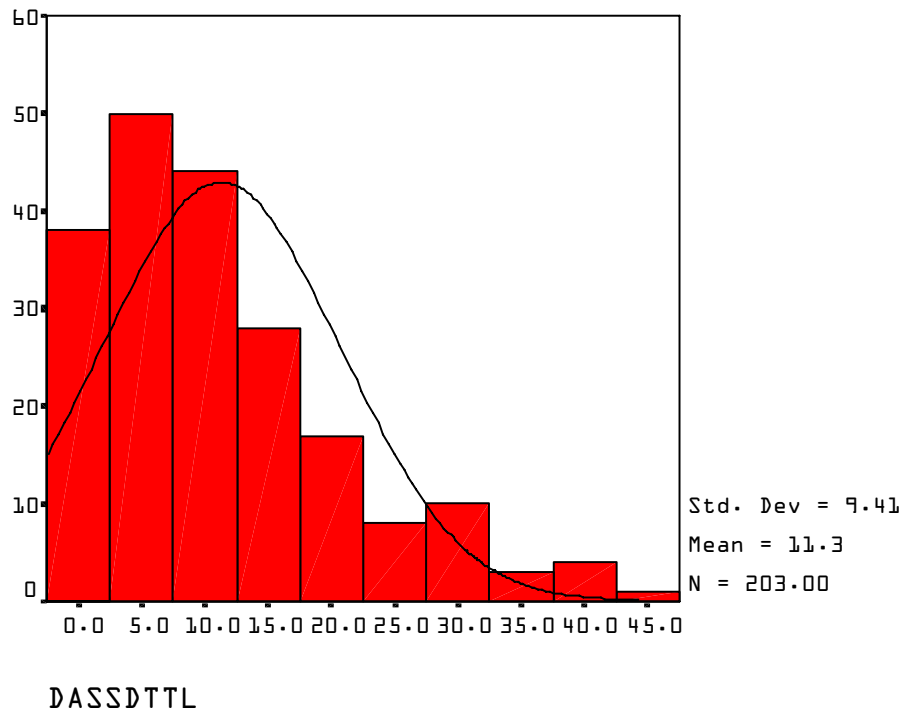
*Figure 40.* Distribution of Parental Expectations

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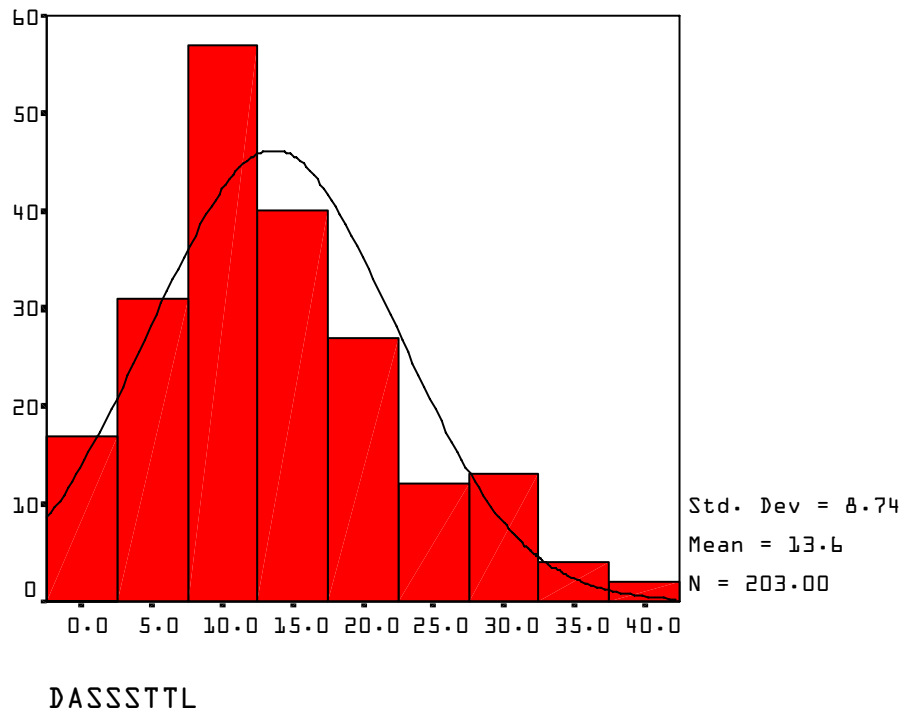
*Figure 50. Distribution of DASS-Anxiety*

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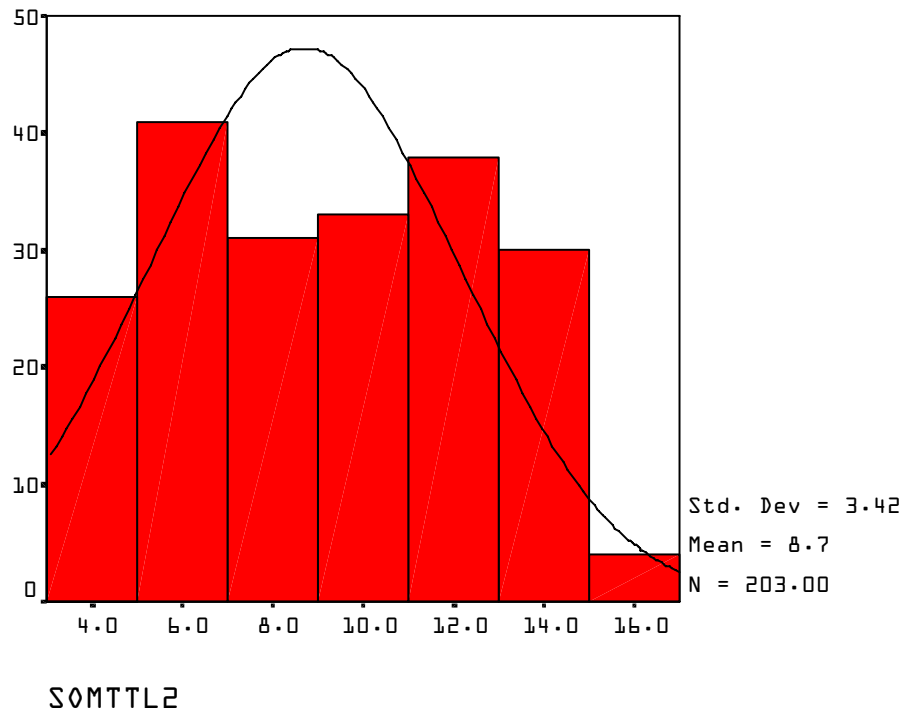
*Figure 60. Distribution of DASS-Depression*

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*Figure 70. Distribution of DASS-Stress*

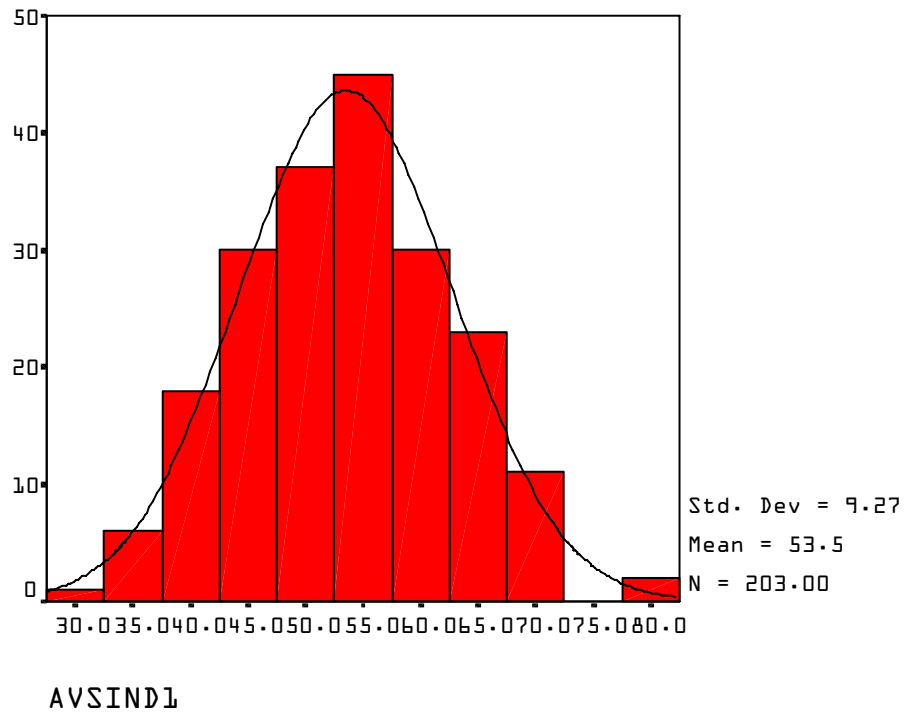
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*Figure 80. Distribution of Somatiation items*

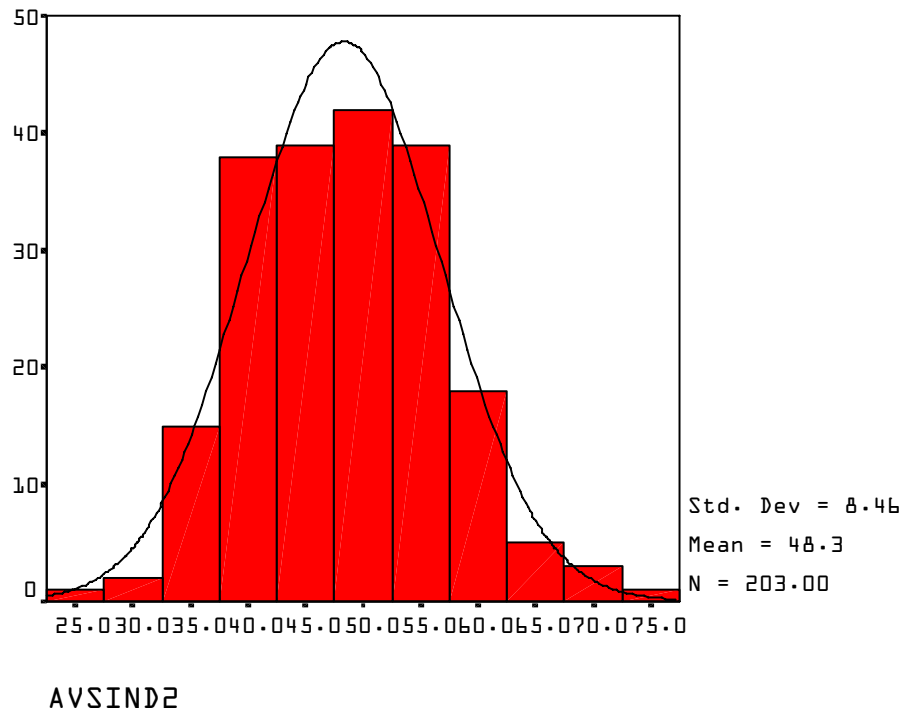
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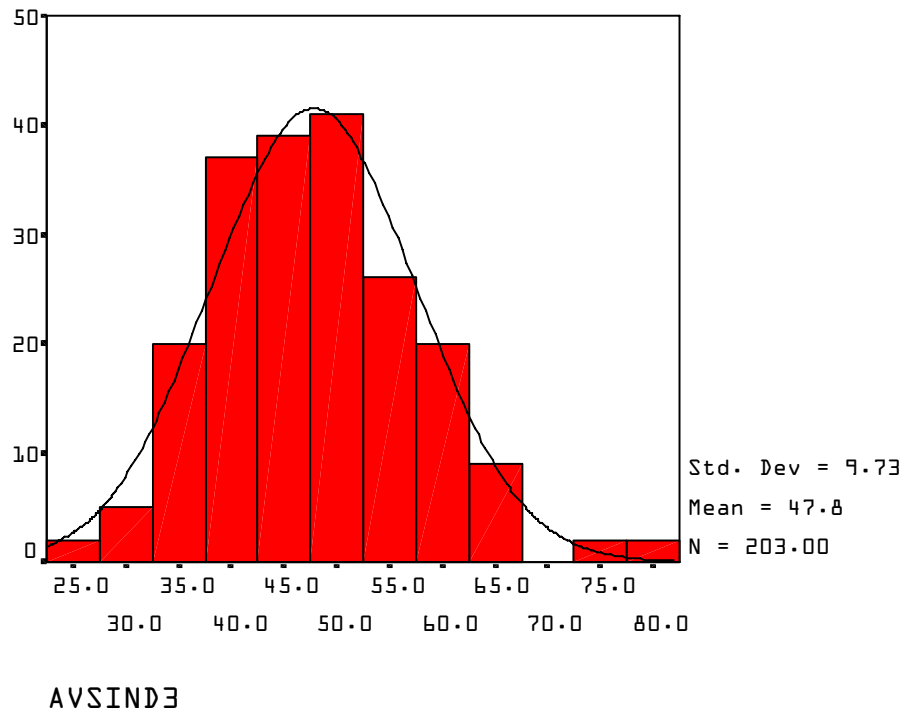
*Figure 90. Distribution of Asian Values Scale 1*

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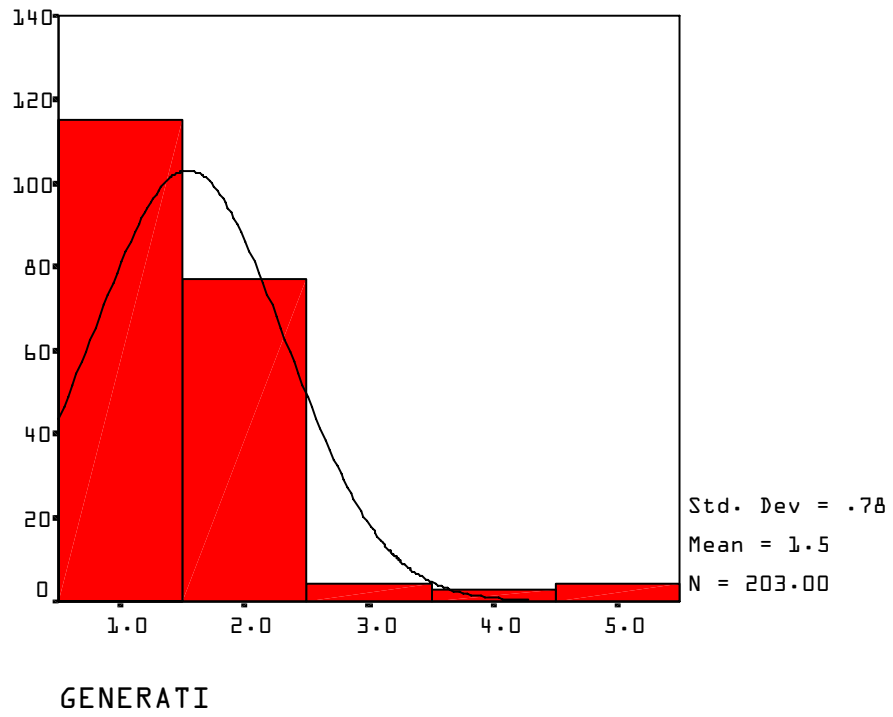
*Figure 100. Distribution of Asian Values Scale 2*

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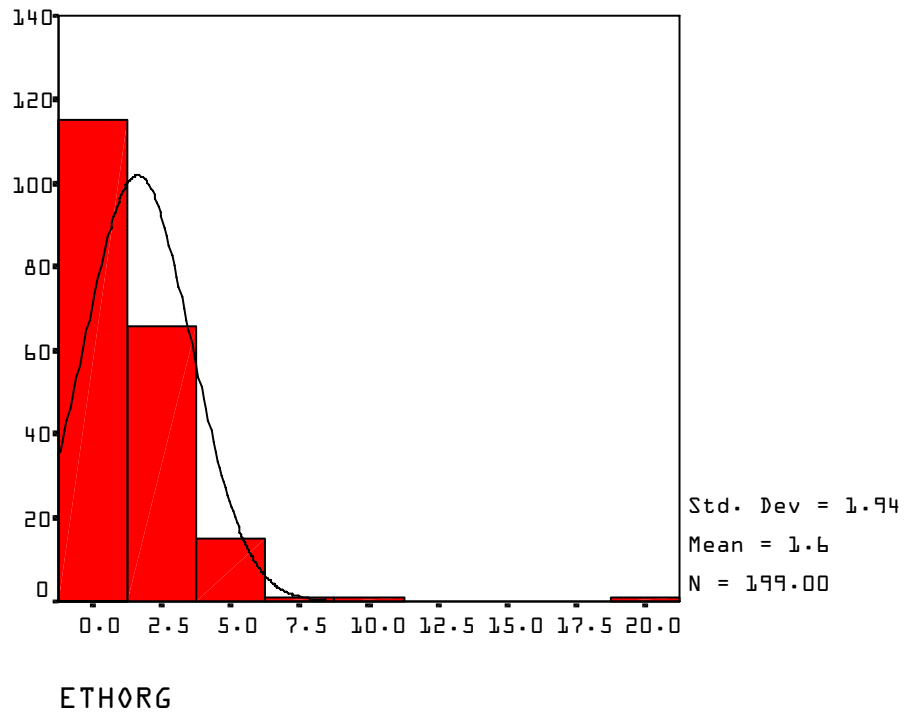
*Figure 110. Distribution of Asian Values Scale 3*

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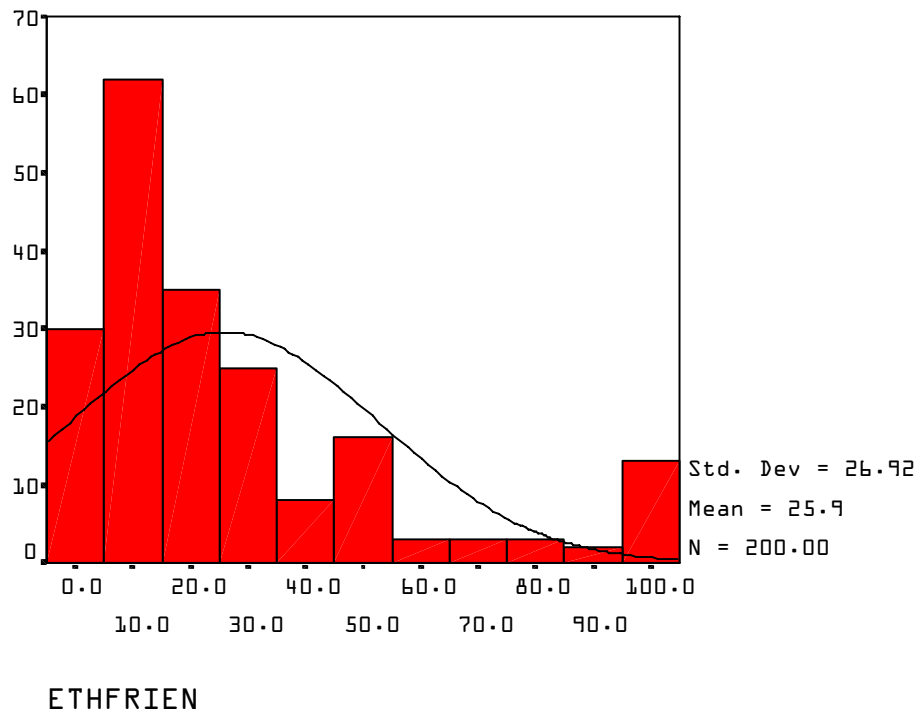
*Figure 120. Distribution of Generational Status of Students*

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*Figure 130. Distribution of Number of Ethnic Organizations*

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*Figure 140. Distribution of Number of Same-Ethnic Friend*

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## VITA

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### EDUCATION

Ph.D. in Counseling Psychology	The Pennsylvania State University	December 2005
M.S. in Social Work	Columbia University, New York	May 1999
B.A. in Linguistics	University of California, Irvine	June 1991
B.A. in English Literature	Sophia University, Tokyo, Japan	March 1991

### CLINICAL EXPERIENCES

Post-doctoral Fellow	Kaiser Permanente	September 2005 - present
Pre-doctoral Intern	UIC Counseling Center	August 2004 - August 2005
	John Stroger Jr. Hospital of Cook County	November 2004 - June 2005
Practicum Counselor	Memphis VA Medical Center	January 2004 - August 2004
Practicum Counselor	The Meadows Psychiatric Center	September 2003 - November 2003
Practicum Counselor	PSU Counseling Center	June 2002 - December 2003
Graduate Assistant	PSU Career Services	August 2002 - May 2003
Practicum Counselor	PSU Career Services	January 2002 - April 2002
Practicum Counselor	CEDAR clinic PSU	September 2001 - April 2002
EAP Manager	Motorola Japan Ltd.	October 2000 - June 2001
EAP Consultant	Motorola Japan Ltd.	June 1999 - September 2000
Social Work Intern	EAPC Cornell Medical Center	September 1998 - May 1999
Social Work Intern	Elmhurst Hospital	January 1998 - July 1998

### PROFESSIONAL PRESENTATIONS

Bieschke, K., Kobayashi, E., & Peterson, E. (2003, August). *Evaluating the psychometric properties of attitudes toward lesbians and gay men scale*. Poster presented at 2003 American Psychological Association Annual Convention: Toronto, Canada.

Kobayashi, E. (2004, August). *Culture, changing values, and work stress among workers in Asia*. Poster presented at 2004 American Psychological Association Annual Convention: Honolulu, HI.

Kobayashi, E. (2003, April). *The role of culture in work stress among Asian workers*. Paper presented at Great Lakes Conference: Kalamazoo, MI.

Kobayashi, E. (2000, June). *What EAP can do to deal with work-place alcoholism in Japan*. Paper presented at Japan Alcohol related issues Conference: Tokyo, Japan.

### RESEARCH INTERESTS

Process and outcome of culturally sensitive approach  
Multicultural counseling competencies