

*Journal of Social and Clinical Psychology*, Vol. 24, No. 3, 2005, pp. 422-444

## **A PSYCHOSOCIAL MODEL OF STRESS-DISTRESS RELATIONSHIP AMONG CHINESE AMERICANS**

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This study used a prospective design to test the robustness of a psychosocial model of stress-distress relationship among Chinese Americans. Direct and moderating effects of personal resources (hardiness and self-esteem) as well as stress (recent events, daily hassles, and financial strain) on psychological distress were tested after accounting for demographic factors and acculturation of 1,503 Chinese Americans, aged 18-65, who were interviewed at two time periods within an 18-month interval in Los Angeles County. Both hardiness and self-esteem had significant main effects on psychological distress. Whereas hardiness did not buffer the stress-distress relationship, self-esteem moderated the effects of recent events and daily hassles on distress. Gender, education, and acculturation were related to levels of distress.

In past decades, research has demonstrated a moderately strong link between stress experiences and mental health (Cohen & Edwards, 1989; Skodol, 1998). Within the stress-distress relationship, investigators have tested various psychosocial models to understand how underlying psychological mechanisms and stress interact to affect the experiences of

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This study was supported in part by the National Research Center on Asian American Mental Health (MH-59616). The authors would like to gratefully thank David Takeuchi, Ph.D., for his permission to use the Chinese American Psychiatric Epidemiological Study (CAPES) data.

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mental distress (Cohen & Edwards, 1989; Skodol, 1998; Taylor & Aspinwall, 1996). Specifically, psychosocial models have tested whether personal resources (e.g., hardiness, self-esteem) prevent or alleviate distress by either directly activating personal coping mechanisms (i.e., increasing plasma cortisol levels, Zorrilla, DeRubeis, & Redei, 1995) or by interactively buffering against stress (Luthar, Cicchetti, & Becker, 2000). Given that the stress-distress relationship has been documented among immigrants and ethnically diverse groups in the United States (Allen, McBee, & Justice, 1981; Kuo & Tsai, 1986; Zheng & Young, 1986), such a psychosocial model may prove useful in understanding how their personal resources influence the handling of stressors and adaptation in their cultural context.

Prior studies on the stress-distress relationship with immigrant and ethnically diverse groups, however, have relied predominantly on convenience samples and cross-sectional designs. Moreover, acculturation, a process that may play a significant role in immigrants' and minorities' experience of distress, has never been investigated within the stress-distress model. Using a prospective design, the present study had three research objectives in examining the stress-distress model with a large-scale community sample of Chinese Americans. First, the sociocultural factors of Chinese Americans (e.g., gender, age, socioeconomic status, immigrant status, acculturation) were taken into account in the psychosocial model to contextualize their distress experience. These factors, though they may seem mundane, have been largely absent from previous studies on the buffering effects of personal resources on distress (Dion, Dion, & Pak, 1992; Perez, 1998). Second, this study confirmed that major stressors (i.e., negative life events, daily hassles, and financial strain) constituted significant contributors to distress among Chinese Americans. Third, the effects of personal resources (i.e., hardiness and self-esteem) were explored to determine whether they exerted direct impact on distress or interacted with major stressors to moderate the stress-distress linkage.

## SOCIOCULTURAL CONTEXTS

People's social position as related to their gender, age, socioeconomic status, and immigrant status may influence their mental health. In most modern societies that continue to be male-dominant and value youth and high socioeconomic status, people who do not belong to the valued social categories are likely to be relegated to a lesser or more vulnerable position. Specifically, women, older individuals, and those who belong to low socioeconomic status or immigrant or minority status may face oppression on the basis of their social positions, which may dispose

them to experience greater distress (Lin & Lai, 1995; Mills & Henretta, 2001). Given the effects of sociodemographic factors on distress experience, the psychosocial model must be tested within this context to understand the specific contribution of personal resources on the stress–distress relationship.

Whereas the negative effects of stress and its impact on distress experiences may be mitigated by personal resources, sociocultural experience may influence the activation of personal resources. Among immigrants and ethnic minorities, acculturation has been found to either facilitate or impede adjustment to the mainstream culture, during which time the values, customs, and languages of two cultures are being navigated. Acculturation, therefore, may serve either as a protective or vulnerability factor of distress. For instance, according to the immigrant adjustment hypothesis (Organista, Organista, & Kurasaki, 2003), less acculturated individuals may experience greater difficulties with the new culture (e.g., language barriers), which may lead to poorer mental health; whereas more acculturated individuals may adapt easier to the practices of the new culture, which facilitates their day–to–day interactions, and thereby may improve their mental health (Lam, Pacala, & Smith, 1997; Lin, Masuda, & Tazuma, 1984; Westermeyer, Neider, & Vang, 1984). In contrast, an immigrant paradox also has been observed (Rumbaut & Weeks, 1996), where less acculturated individuals remain in familiar ethnic enclaves that cushion against stressors and more acculturated individuals immerse themselves in the host society and experience greater demands and conflicts between two competing cultures (Burnam, Hough, Karno, Escobar, & Telles, 1987; Nguyen & Peterson, 1993). The inconsistent relationship observed between acculturation and distress may be due to differences in sample characteristics across studies, the domains of acculturation assessed, as well as the incorporation of other risk and resource factors into the analysis. The present study attempts to test the effects of acculturation on a large–scale community sample of Chinese Americans within the psychosocial model.

## PERSONAL RESOURCES

Given that immigrants and ethnic minorities face numerous challenges in their daily life with the mainstream culture, personal resources, in particular hardiness and self–esteem, may play an important role in their stress–distress experiences. According to Kobasa (1979), hardiness represents a general orientation toward the self and the world as manifested in three related dimensions: commitment, control, and challenge. Individuals who are hardy are likely to view life as meaningful and are involved in their work (*commitment*). They believe that they have the

ability to influence the course of events (*control*) and consider change as an opportunity for growth rather than a threat (*challenge*) (Soderstrom, Dolbier, Leiferman & Steinhardt, 2000). Individuals with these qualities may have the stamina and the sense of personal control to deal with life's uncertainties and to take purposive actions, while negotiating between different cultural demands. In contrast, less hardy individuals may lack the determination to overcome the difficulties resulting from competing sociocultural expectations and norms. The present sample of Chinese Americans may be among the hardest people in the United States given that they are the ones who have emigrated from their culture of origin to settle in a foreign country, they are relegated to a minority status in the United States, and they have to navigate between cultures in their everyday lives.

Although the conceptualization of hardiness as a personal resource that buffers against stress and distress is compelling, its empirical support has been mixed. Among the research studies that were based on corporate and college samples and consisted predominantly of European Americans, hardiness was found to reduce depressive symptoms and to alleviate the effects of stressful events (Brookings & Bolton, 1997; Kobasa, 1979; Williams & Lawler, 2001). In other instances, hardiness failed to affect health either directly or interactively with stress (Bernard & Belinsky, 1993; Blaney et al., 1991; Chan, 2000; Spampneto, 1997; Stokes–Crowe, 1998; Williams, 1990). In one study with Asian American immigrants, hardiness was found to both directly reduce distress and to inhibit the occurrence of migratory and general stress; however, the effects of major demographic factors and acculturation were not accounted for in the study (Kuo & Tsai, 1986). Overall, the direct effect of hardiness on psychological distress was more consistently found than its buffering effect on the stress–distress relationship (Funk, 1992). In the present study, hardiness is hypothesized to directly alleviate the distress of Chinese Americans, although its moderating power has yet to be explored after the effects of sociocultural factors are taken into account.

In addition to hardiness, self-esteem, another important personal resource, may facilitate Chinese Americans' coping against stressors and distress. *Self-esteem* refers to the "sense of self-worth, self-respect, and self-acceptance that is usually linked to an expectation of success in life" (Skodol, 1998, p. 378). Individuals with a high level of self-esteem may garner inner strength to prevail against life changes, whereas those with low self-esteem may give up easily in times of hardship and strain. Findings have shown that self-esteem is associated negatively with psychological distress (Hovey & Magana, 2002; Tabora, 1995) and moderates stress in the prediction of psychological distress (Hobfoll & Leiberman, 1987; Miller, Kreitman, Ingham & Sashidharan, 1989; Rector & Roger,

1996; Whisman & Kwon, 1993; *except* Ritter, Hobfoll, Lavin, Cameron, & Hulsizer, 2000, who found no moderating effect). Self-esteem was also demonstrated to be the best predictor of depression among an array of resistance and vulnerability factors in Chinese American immigrant women (Tabora, 1995).

Although, psychologists have questioned the universality of positive self-regard across cultures (*see* Heine, Lehman, Markus & Kitayama, 1999, for a review), the issue is still being hotly debated. More recently, Sedikides, Gaertner, and Toguchi (2003) have indicated that self-enhancement is a universal human motive, where individuals of differing self-construals and cultural orientations self-enhance on personally important dimensions and attributes. Furthermore, Brown (2003) clarified Heine's (2003) assertion that East Asians do not like themselves any less than their North American counterparts, only that they are more critical of their self-competence by showing that self-enhancement motive is present in collectivistic cultures, only that its expression is limited by cultural norms. Although individuals may express self-enhancement differently according to prevailing cultural norms, self-esteem remains important cross-culturally. In the present study, self-esteem was hypothesized to interact with stress variables in explaining distress and to be negatively related to psychological distress.

## STRESSORS

Many studies have indicated that everyday stressors and life changes can affect mental health and the manifestation of mental disorders (Allen, McBee, & Justice, 1981; Lin, Simeone, Ensel, & Kuo, 1979; Zheng & Young, 1986). These influences could be particularly salient for immigrant ethnic minorities who often must make major adaptive changes to function effectively within different cultural milieu and economic systems (Kuo & Tsai, 1986). In addition to negative life events, ongoing stress and hassles in daily life were found to affect individuals' health negatively and to predict psychological symptoms (Banks & Gannon, 1988; Chan & Lee, 1992; Monroe, 1983). Among these stressors, financial strain has been identified as a primary source of daily stress (Pearlin, 1991). Economic difficulties were found to be positively associated with depressive and somatic symptoms among Chinese (Krause & Liang, 1993). Past research findings have shown daily hassles to account for a greater portion of variance on psychosomatic symptoms than life events (Chan & Lee, 1992; Ivancevich, 1986; Ruffin, 1993).

## SIGNIFICANCE OF THE STUDY

Given the complexity of sociocultural influences, the robustness of a psychosocial model in the stress–distress relationship must be tested in a large–scale community sample of immigrants and ethnic minorities. Furthermore, employing a prospective design can tease apart the relationships among personal resources, stress, and psychological distress and delineate the power of personal resources within a sociocultural context. The present investigation was the first study to incorporate important sociocultural factors and use a prospective design to test how the psychosocial model holds up for a single Asian American group, Chinese Americans. Previous studies have generally combined Asian American subgroups to amass sufficient sample sizes. Due to the heterogeneity among Asian groups, however, this practice may obscure important individual and within–group differences. By studying a stratified community sample of Chinese Americans, the largest Asian American group in the United States, the present investigation tests the effects of hardiness and self–esteem on the stress–distress relationship within a specific ethnic group.

## METHOD

### SAMPLING

Data were collected during two time periods. The first wave of data collection began in April 1993 and was completed in August 1994. A community sample of 1,747 Chinese Americans aged 18 to 65 years was selected by a stratified sampling method in Los Angeles County. Sampling was achieved through (1) selection of census tracts, (2) selection of blocks within tracts, (3) selection of households within blocks, and (4) selections of individuals within households. Thirty–six census tracts and 12 blocks within each tract were selected with probabilities proportional to size. Subsequently, households within each selected logical block were chosen based on lists of random housing units systematically generated in the field. One eligible member who had the most recent birthday was selected for each household. Because this sampling design achieved a self–weighting sample at the household level, only weights at the respondent level were applied. Weights were adjusted for household size and nonresponse rates. Respondents were interviewed in English, Mandarin, or Cantonese according to their language preferences. Further description of sampling method and data collection procedures was reported in Takeuchi et al. (1998). Eighty–six percent of the respondents ( $n = 1,503$ ) were re–interviewed at the 18–month follow–up. Table 1 summarizes the characteristics of the sample used in the study. The re–

spondents who were not interviewed at follow-up tended to be slightly younger and single and reported slightly lower annual household income compared to the respondents who were re-interviewed. The nonrespondents did not differ from the respondents in education level and gender distribution.

## MEASURES

*Hardiness (Time 1).* Forty-three items from the "third-generation" hardiness scale (Funk, 1992) were used to assess challenge (17 items), commitment (16 items), and control (10 items). Respondents were asked to rate the extent each item applied to them on a 4-point Likert scale from 1 (*very true*) to 4 (*not true at all*). Consistent with previous findings (Funk, 1992), commitment and control were more strongly interrelated ( $r = .57$ ) than were the correlations with challenge ( $r = .49$  with commitment and  $r = .31$  with control). The construct has shown cross-cultural validity as it was applied to Chinese and Asian immigrants (Chan, 2000, 2003; Kuo & Tsai, 1986). The ratings were averaged to form a composite score for hardiness. The composite was more internally consistent than the subscales (Cronbach's alpha = .84 vs. .74 for challenge, .71 for commitment, and .63 for control).

*Self-Esteem (Time 1).* Five items with the highest loadings from Rosenberg's (1965) Self-Esteem Scale were used to assess self-esteem. The scale was the most widely used measure on self-esteem and has demonstrated cross-cultural validity with Chinese and Asian American groups (e.g., Zhang & Norvilitis, 2002). Respondents were asked to rate the extent each item applied to them on a 4-point Likert scale from 1 (*very true*) to 4 (*not true at all*). Despite the number of items used, the internal consistency of the scale was adequate (Cronbach's alpha = .63).

*Stress (Time 2).* To more completely examine the relationship between stress and psychological distress, three forms of stress were measured: (1) recent events, (2) daily hassles, and (3) financial strain. These measures have been used and validated among Chinese and Asian American groups for the assessment stress (Chan & Lee, 1992; Falk, 1995; Lam & Palsane, 1997).

Ten negative events which occurred within the past 12 months were used to measure recent events. The measure was used in the University of Michigan's version of the Composite International Diagnostic Interview (UM-CIDI), which was based on the Schedule of Recent Life Events and the Social Readjustment Rating Questionnaire (Holmes & Rahe, 1967; Kessler et al., 1994). Events included tensions or separation with significant others, death of close friends or relatives, life-threatening illness, robbery, and trouble with the law. A total score was obtained

TABLE 1. Sample Characteristics

	Percent
Gender	
Male	50.4
Female	49.6
Age ( $M = 39.83$ years, $SD = 12.58$ )	
18-25	14.3
26-35	25.5
36-45	26.4
46-55	19.8
56 or over	14.1
Education ( $M = 13.13$ years, $SD = 3.73$ )	
Less than high school	12.2
Some high school	9.5
High school graduate	19.8
Some college	21.2
College graduate	17.4
Graduate school	19.9
Marital Status	
Never married	27.3
Married	67.4
Separated/Divorced	3.6
Widowed	1.7
Foreign-Born	94.6
Length in the U.S. ( $M = 13.01$ years, $SD = 8.85$ )	
0-5 years	15.4
6-10 years	24.9
10 years or more	59.7
Household Income	
\$0-10,999	9.6
\$11,000-24,999	35.2
\$25,000-49,999	30.6
\$50,000-99,999	20.7
\$100,000 or over	3.8
Primary Language Used in the Household	
Cantonese	40.1
Mandarin	32.3
Taiwanese	3.1
Hakkanese	0.4
English	8.7
Both Chinese and English	7.6
Other	7.8



by summing the number of negative events experienced by the respondent in the past year. The simple count of life events has been found to be an effective and reliable method to assess the impact of events on psychological symptoms (Grant, Sweetwood, Gerst & Yager, 1978; Lei & Skinner, 1980).

A modified version of the Daily Hassles Scale (Kanner, Coyne, Schaefer, & Lazurus, 1981), which assesses 16 areas of everyday strains, including interpersonal conflicts, living pressures, and nuisance typical of urban living, was used to measure daily hassles. The present study used the total number of daily hassles experienced by respondents in the past month to differentiate external sources from internal responses to stress (Reich, Parrella, & Filstead, 1988).

Financial strain was assessed using eight questions adopted from the Social Readjustment Rating Questionnaire (Holmes & Rahe, 1967) which included such financial concerns as insufficient money for housing, debts, and credits; money for emergencies, inflation, and daily costs of living, and financial responsibility. Scores were based on the sum of financial strain experienced by respondents in the past month.

*Psychological Distress (Time 2).* The global severity index (GSI) of the Symptom Checklist 90-Revised (SCL-90R; Derogatis, 1978; Derogatis & Cleary, 1977) was used to evaluate respondent's self-reported degree of psychological distress within a 1-week period at Time 2. It is a well-established measure of psychological distress that has been used with Chinese American and Southeast Asian samples (Westermeyer et al., 1984; Wu, 2003). The SCL-90R included 10 symptom scales measuring somatization, obsessive-compulsive problems, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and four additional items of clinical indicator such as poor appetite and feelings of guilt in a 5-point scale, ranging from 0 (*not at all*) to 4 (*extremely*). The present study used the GSI, the mean score of all items. The internal consistency of the measure was .97.

*Acculturation (Time 2).* The acculturation scale was based on the Acculturation Rating Scale for Mexican Americans (ARSMA; Burnam et al., 1987; Cuellar, Harris, & Jasso, 1980) and the Behavioral Acculturation Scale (Szapocznik, Scopetta, Kurtines & Aranalde, 1978). Eight self-referenced items, covering language usage, ethnic social affiliation, and involvement in cultural activities, were used to construct the acculturation score in this study. The items were rated on a 5-point Likert scale, with higher values indicating greater acculturation to the American culture. The scale was internally consistent (Cronbach's alpha = .83), with item-total correlation ranging from .16 to .79. Principal component factor analysis of the scale indicated a one-factor model, which accounted for over 48.71% of the variance. Construct validity of the mea-

sure for the present sample was indicated as it was highly correlated with years living in the United States ( $r = .52$ ), generation ( $r = .51$ ), English use in the household ( $r = .70$ ), spending their childhood in the United States ( $r = .62$ ), and ethnic self-identification ( $r = .47$ ),  $p < .001$ .

*Demographics (Time 2)*. Gender was recorded by the interviewers based on their observation of the respondents. Age was defined as respondents' age in years at the time of the second interview. Education was defined as the number of years of schooling completed by the respondents. Household income was based on respondents' self-report of their family's total income for the past year. Respondents also reported their place of birth and their years of residence in the United States.

### ANALYTIC STRATEGIES

A prospective design was used to examine the effects of personal resources on the stress–distress relationship, after accounting for sociodemographic factors. The main effects and interaction effects of hardiness, self-esteem, and stressor variables were tested using hierarchical regression analysis. The criterion variable in the regression analysis was Time 2 psychological distress as measured by the SCL–90R. Demographic variables from Time 2 (gender, age, education, household income, birthplace, years of residence in the United States, and acculturation) were entered in block 1 to account for the relationships of demographic and sociocultural characteristics with psychological distress. Then, Time 2 stress variables (recent events, daily hassles, financial strain) were entered in block 2 to examine how stressors affected distress after the effects of sociocultural conditions were controlled. In the third block, psychological variables from Time 1 (hardiness, self-esteem) were entered to determine whether they contributed to the prediction of psychological distress after sociocultural characteristics and stress factors were accounted for in the distress model. Finally, interactions among stress and psychological variables were entered to determine whether they had joint effects on psychological distress in Time 2.

To check for multicollinearity, indices of tolerance (TOL) and variance inflation factor (VIF) from regression analyses were used. Multicollinearity may be present when tolerance values are smaller than 0.1 or VIF values are greater than 10. Interaction terms used in the regression analyses were the product of the deviation from the mean of stress variables and psychological variables. This method was used over the product of the variables because it produces scores that are relatively more independent from the variables (Finney, Mitchell, Cronkite & Moos, 1984; Holmbeck, 1998; Norris & Murrell, 1984). Data were

TABLE 2. Mean and Standard Deviation of Variables

Variables	<i>M</i>	<i>SD</i>
Time 2 Sociocultural Characteristics		
Sex (0 = male[comma here] 1 = female) <sup>a</sup>	.50	.50
Age (19.5–66.5)*	39.83	12.58
Education (in year) (0–17)	13.13	3.73
Household Income (1–23)	16.92	3.94
Birth Place (0 = foreign born[comma here] 1 = US born) <sup>b</sup>	.05	.23
Years in the U.S. (1.25–62.25)	13.01	8.85
Acculturation (1–4.6)	2.04	.69
Time 2 Stressors		
Recent Events (0–4)	.34	.65
Daily Hassles (0–16)	3.16	2.93
Financial Strain (0–8)	1.07	1.76
Time 1 Personal Resources		
Hardiness (.84–1.90)	1.32	.16
Self-Esteem (1.2–4)	2.93	.44
Time 2 Psychological Distress (0–2.29)	.14	.23

\*Numbers in parentheses are actual range of the variables. <sup>a</sup>758 males; 745 females. <sup>b</sup>1,422 foreign-born; 81 U.S.-born.

weighted, and all predictor and criterion variables were standardized for analyses.

## RESULTS

### SOCIOCULTURAL VARIABLES AND PSYCHOLOGICAL DISTRESS

Descriptive statistics of all variables used in the psychosocial model are presented in Table 2. Referring to the hierarchical linear regression model, at block 1, most demographic variables were significantly associated with psychological distress,  $p$ 's < .05. Female respondents reported more psychological distress than their male counterparts, and older respondents reported more distressed symptoms than younger individuals. Education was negatively associated with distress; thus, more highly educated individuals were less distressed compared to those who were less educated. Household income was negatively related to distress, indicating that those with higher incomes were less likely to experience distress than those who earned less. Acculturation was positively associated with distress, implying that more acculturated individuals reported being more distressed

TABLE 3. Hierarchical Regression Model of Hardiness, Self-Esteem, and Stress Variables on Psychological Distress

Variables	Block 1 $\beta$	Block 2 $\beta$	Block 3 $\beta$	Block 4 $\beta$
Time 2 Sociocultural Characteristics				
Sex	.06*	.04	.05	.05*
Age	.08**	.06*	.05	.05
Education	-.09**	-.11***	-.09**	-.09**
Household Income	-.06*	-.03	-.03	-.03
Birth Place	.02	-.00	.01	.01
Years in the U.S.	-.04	-.03	-.00	-.01
Acculturation	.15***	.09*	.11**	.10**
Time 2 Stressors				
Recent Events		.21***	.20***	.21***
Daily Hassles		.23***	.22***	.23***
Financial Strain		.15***	.15***	.15***
Time 1 Personal Resources				
Hardiness			-.07*	-.07*
Self-Esteem			-.09**	-.08**
Stressor $\times$ Personal Resource Interactions				
Hardiness $\times$ Recent Events				.03
Hardiness $\times$ Daily Hassles				-.04
Hardiness $\times$ Financial Strain				-.04
Self-Esteem $\times$ Recent Events				-.06*
Self-Esteem $\times$ Daily Hassles				.08**
Self-Esteem $\times$ Financial Strain				-.04
$R^2$	.03	.18	.19	.20
$df$	7/1475	3/1472	2/1470	6/1464
$F$ change	5.33***	90.16***	14.70***	3.57**

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

than less acculturated individuals. Despite its initial statistical significance, it is interesting and important to note that after stress variables and personal resource variables were entered into the analysis, the effects of age and household income were no longer significant at block 4. Nevertheless, significant effects of sex, education, and acculturation remained. Birthplace and length of residence in the United States had no significant effects on psychological distress across all blocks. In other words, the immigrant status of the participants did not affect their distress levels, thereby lending support to the generality of our findings from Chinese immigrants, which comprised 95% of our sample, to Chinese Americans in general.

## PREDICTIVE POWER OF HARDINESS AND SELF-ESTEEM

Regression findings indicated that the overall model explained 20.4% of the variance in psychological distress,  $F(18, 1464) = 20.82, p < .001$  (see Table 3). Multicollinearity was not indicated (TOL ranges .39 to .95, VIF ranges 1.05 to 2.60). The result demonstrated the additive value of hardiness and self-esteem. Individuals who were harder or had greater self-esteem had lower levels of psychological distress, even after their sociocultural characteristics and stress experiences were controlled. All stress variables were strongly and positively related to psychological distress. Individuals who reported experiencing a greater number of recent events, daily hassles, or financial strain were likely to experience greater distress.

## MODERATING EFFECTS OF SELF-ESTEEM

Whereas the interaction effects of hardiness with stress variables were not significant,  $p > .05$ , self-esteem was found to significantly moderate the effects of various stress variables on psychological distress,  $p < .05$ . Self-esteem significantly moderated the effects of recent events and daily hassles on psychological distress but in opposing directions. Self-esteem buffered the effects of recent events on distress as the number of recent events increased; however, for daily hassles, having a high level of self-esteem further exacerbated the experience of distress when the number of daily hassles increased.

## DISCUSSION

The present study extended beyond previous research by using a prospective design to test the robustness of the psychosocial model of distress among Chinese Americans. The study accounted for important sociocultural characteristics, multiple stressors, personal resources, and their interactions with stress to further understand the distress experiences of a specific ethnic group. First, in regards to the influence of demographic factors and acculturation, it is interesting to note that even when recent stressors, personal resources, and their interactions were incorporated to explain the distress experience of Chinese Americans, gender, education, and acculturation were still significantly related to distress. Findings were consistent with previous findings of gender and educational differences, where women and those with less education expressed greater distress than their counterparts (e.g., O'Connor, Belanger, Marchand, Dupuis, Elie, & Boyer, 1999; Rohrbaugh et al., 2002). Although the present research was unable to tease apart the spe-

cific mechanisms that contribute to this recognized difference, the findings seem to suggest that beyond their personal resources and stress experiences, the social positions of both genders and the different educational levels might have an effect on their reporting practice or actual distress experience.

As to the influence of acculturation, given that most of the respondents were immigrants, it was reasonable to expect that the majority may be going through an active acculturative process where they are learning to adapt to a new cultural setting, overcoming the language barrier to accommodate to different situational demands, and finding a place among varied groups of individuals to which they can belong. This dynamic process might be stressful, resulting in increased psychological distress. Moreover, such migration–related and acculturative stress might be additional to the long–term and day–to–day stressors that individuals experience socially and financially. In the present study, acculturation was positively related to distress. This finding supported the immigrant paradox hypothesis (Rumbaut & Weeks, 1996; Shen & Takeuchi, 2001) and added to the mix of findings between acculturation and distress. Another explanation of the finding may be that adapting to a new culture may affect the pattern of symptom manifestation. Chinese populations who reportedly have high levels of somatization tendencies (Chen, 1995; Hong, Lee, & Lorenzo, 1995; Tabora & Flaskerud, 1994) might change their reporting practices as they become more acculturated into the mainstream culture and become more willing to disclose their psychological problems. Nevertheless, this alternative explanation has not been confirmed in the current sample of Chinese Americans (Mak & Zane, 2004).

In reference to our second and third research objectives, all personal resources and stressors were significantly related to distress. Consistent with previous research (Banks & Gannon, 1988; Chan & Lee, 1992; Monroe, 1983; Pearlin, 1991; Skodol, 1998), the current study demonstrated that various stressors intensify individuals' distress experience. Recent events, daily hassles, and financial strain were all significantly related to psychological distress. The percentage of total variance explained by stress variables was the highest among the predictors in this model, indicating that stress was the most important source contributing to distress. Among the three stressors, an analysis of the part correlations showed their relative importance: daily hassles had the strongest effect on distress; recent events had a similar impact but to a lesser extent; financial strain was much less than the previous two types of stress. This finding was consistent with previous studies with European Americans, Australians, and Chinese, which showed that hassles were related more strongly to psychological distress than life events (Chan & Lee, 1992;

Ivancevich, 1986; Ruffin, 1993). Thus, there may be a possibility that the accumulation of hassles on a daily basis may be more taxing than a singular significant event to individuals cross-culturally.

Although daily hassles seemed to exert more stress on individuals than life events in general, their effect on distress might be particularly strong as they related to the cultural change experience. Correlational analyses among acculturation and the three stressors indicated the strongest relationship between daily hassles and acculturation ( $r = .17, p < .01$ ), followed by the relationships between acculturation and recent events ( $r = .15, p < .01$ ), with financial strain showing no relations with acculturation ( $r = .01, p = .78$ ). In the process of cross-cultural adaptation, individuals may encounter stressors frequently and pervasively in their everyday life. As a result, daily hassles might make more of an impact on psychological health than specific stressful events, which may vary greatly in magnitude and intensity of impact, or financial strain, which happened more frequently with individuals who were of lower socioeconomic status, temporarily laid off, unemployed, or physically disabled.

Related to our third research question, the psychosocial model on stress-distress relationship was partially supported. Hardiness did not moderate the effects of stress on psychological distress but instead acted as an independent predictor on distress. Hardy individuals experienced less psychological distress regardless of their stress levels. Findings from our gender-balanced community sample supported the results obtained by Chan (2000) in his sample of 245 Chinese secondary school students, a majority of whom were female. Findings also corresponded with the results of other studies using samples of college students (Stokes-Crowe, 1998), immigrants (Perez, 1998), adults (Spampneto, 1997), and HIV patients (Blaney et al., 1991). Overall, evidence supported the direct effects of hardiness, rather than a moderating effect, on psychological distress. Hardy individuals showed more resilience to the development of distress. For this group of Chinese Americans, who have experienced many stressors and adjustment issues, their hardiness provides a protective resource for them against adversities and reduces their chance of experiencing distress. Hardiness may be associated with positive coping and psychosocial functioning that facilitate Chinese Americans' adaptation.

Unlike hardiness, self-esteem had both a direct as well as a moderating effect on distress. This result supported previous findings which showed self-esteem to be one of the most significant personal resources on distress (Tabora, 1995). What remains intriguing is the opposing effects of self-esteem as it interacts with recent events and daily hassles. Whereas self-esteem ameliorates the effects of recent events on distress,

it intensifies the negative effects of daily hassles on distress. Perhaps self-esteem can ward off the impact of a significant event over a 1-year period, but may not be able to defend as effectively against immediate, day-to-day stressors.

The disparate results indicate that assessing the level of self-esteem alone may not be enough. Along with the level of self-esteem, recent studies posited the importance of another dimension; self-esteem stability in the prediction of distress. *Self-esteem stability* refers to "the magnitude of short-term fluctuations in individuals' contextually based current self-esteem" (Kernis et al., 1998, p. 658). In the study by Kernis and colleagues, self-esteem level did not interact with stress in the prediction of depression, and unstable self-esteem moderated the effects of daily hassles on depression. Instability in self-esteem was also found to have both independent and interactive effects on psychological well-being with levels of self-esteem (Paradise & Kernis, 2002; Tevendale, DuBois, Lopez, & Prindiville, 1997). Specifically, individuals with a high yet unstable level of self-esteem showed higher depressive symptomatology than their counterparts with low self-esteem (Kernis et al., 1998). Thus, depending on the stability of their self-esteem, the impact of individuals' level of self-esteem may fluctuate in the midst of different types of stressor. Applying to the current study, among respondents with high self-esteem, those who had fragile or unstable self-esteem were still likely to feel stressed out by the hassles that they encountered every day, which continuously challenged their self-worth. In this sense, having high level of self-esteem was not enough to mitigate the experience of distress. The compounding of high self-esteem and unstable self-esteem might exacerbate their stress experience as their self-esteem was at stake the in midst of everyday challenges. The obscurity of moderating effects indicates a need to decompose self-esteem so as to ascertain the role that each dimension plays in the stress-distress relationship.

The stability of self-esteem may be a particularly salient feature for Chinese Americans and individuals who have a stronger sense of interdependence. Given that their identity and self-worth may be strongly influenced by their affiliated social networks, stability of their self-esteem may be contingent on the sociocultural contexts in which they function (Markus & Kitayama, 1991). This is relevant to immigrants and other ethnic groups who have to navigate between more than one culture at a time.

Taken together, hardiness and self-esteem both contributed uniquely to psychological distress. Though the added value of these two variables only explained a small percentage of the total variance in distress, the additive effects were still significant after many important sociocultural



factors and stressors were taken into account. It is important to note that the interval between the two waves of data collection was 18 months. In spite of the length of time, the influence of these two personal resources measured at Time 1 persisted and affected individual distress levels at Time 2 in the presence of stressful events and other sociocultural conditions in life. The ability to capture the enduring impact of individual traits is a strength of this study's prospective design. This concurs with Smith and Bond's (1998) assertion that longitudinal research is more powerful than cross-sectional design in the assessment of psychological and sociocultural dynamics.

#### FUTURE RESEARCH DIRECTIONS

The present research is a step forward in our understanding of the psychosocial model on the stress-distress relationship among Chinese Americans. Despite the inclusion of an array of important sociocultural factors and personal resources into the understanding of distress, the findings point to the importance of specificity in measurement and mapping of relationships. Several issues are noted here. First, measurements of psychosocial constructs must be tested and validated cross-culturally to ensure that the constructs are culturally valid. Although the constructs of stress, hardiness, and self-esteem have been applied cross-culturally, researchers must take heed in assuring the cross-cultural validity of the constructs as well as the measurements themselves. Second, to deconstruct the long-standing gender and educational differences in mental health, specific values and mechanisms related to these social positions must be directly assessed. This may be related to the social hierarchy in which they stand and the opportunities that are afforded to the individuals.

Third, to further unravel the relationship between cultural change and mental health, both acculturation and enculturation must be simultaneously studied. Whereas acculturation signifies the process of learning and adopting the norms of a new culture, enculturation refers to the retention or adherence of norms of the original culture (Wolfe, Yang, Wong, & Atkinson, 2001). The distress experience may be related to levels of acculturation and enculturation. That is, the relationship between acculturation and psychological distress may be contingent on the level of enculturation of the individuals. As individuals become more acculturated to the new culture, the associated stressors may cause distress to the individuals only when they feel little affinity with their original culture (low enculturation), which serves as a source of support and protection against the new culture. Thus, retention of one's own culture may be important for the healthy adjustment to a new culture.

Fourth, given that acculturation has been found to be multi-faceted (Zane & Mak, 2003), the current measurement of acculturation as a unidimensional construct may not be suffice to differentiate the relations between varied acculturative domains and distress, which may explain the immigrant paradox and immigrant adjustment dilemmas.

Fifth, in addition to the independent assessment of both enculturation and acculturation as multidimensional constructs, a more proximal variable, acculturative stress, must be assessed to account for its mediating effects between acculturation and distress (Hans, 2002). In the present study, acculturation remained significantly related to distress even after three types of stressors (recent events, daily hassles, and financial strain) were considered, indicating the possibility of culture-specific or migration-specific stressors in the process of acculturation. Immigrants and ethnic minorities may encounter additional strain as they negotiate between multiple cultures. Further investigation is needed to unravel the link between enculturation, acculturation, acculturative stress, and mental health.

Finally, examination of the functional mechanisms of hardiness and self-esteem on distress are warranted. How does each component of hardiness and self-esteem map onto different value orientations and behavioral coping strategies, which influence ones' mental health? Is hardiness best conceptualized as a unitary construct or would a detailed component analysis help us decipher the mechanisms by which individuals develop resilience against stress (Funk 1992)? The dimensions of self-esteem (e.g., stability and level) need to be systematically studied among culturally diverse individuals to explicate the underlying process that governs this powerful construct. Although these psychosocial constructs have helped us to better understand the psychological well-being of individuals, let us continue to move forward in explaining the underlying processes that are culturally salient to diverse individuals and impinge upon our everyday experiences.

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