A structural model of acculturation and mental health status among Chinese Americans

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David Takeuchi
Boston College, USA

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A Structural Model of Acculturation and Mental Health Status Among Chinese Americans[1]

Biing-Jiun Shen[2]

Department of Psychology, University of California, Los Angeles, California

David T. Takeuchi

Department of Sociology, Indiana University, Bloomington

This study examined the role of acculturation and its direct and indirect impact on depressive symptom severity through various correlates, including socioeconomic status (SES), stress, social support, personality negativity, and physical health perception. Using structural equation modeling, the proposed model was tested with 983 employed Chinese Americans from a representative community sample, the majority of whom were immigrants. The results demonstrated that acculturation, correlated with SES, contributed to depressive symptom severity only through indirect pathways. Higher acculturation was found associated with higher stress that in turn contributed to more elevated depressive symptoms. On the other hand, higher acculturation was also found strongly correlated with higher SES, which was associated with lower depressive symptoms directly or indirectly through several mediators. Better support, lower personality negativity, better health perception, and lower stress were found mediating the relationship between higher SES and lower depressive symptom severity. The simultaneous multigroup analysis showed that the final model was comparable for both men and women with very few differences.

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[2]To whom correspondence should be addressed at Department of Psychology, Franz Hall Graduate Mailroom, University of California, Los Angeles, 405 Hilgard Avenue, Los Angeles, California 90095; e-mail: iagosh@ucla.edu.

INTRODUCTION

Acculturation is a term generally referring to the psychosocial adjustment and adaptation to a new culture for people from another culture (Graves, 1967). The notion of acculturation has been one of interest as well as dispute in the research on mental health of ethnic minorities and immigrants. The lack of integrated conceptual models and rigorously designed empirical studies, however, had hindered the advancement of our understanding of the role of acculturation in the individual's functioning and coping process in the mainstream culture. In the last two decades, more integrated perspectives have been proposed to clarify some conceptual issues with regard to acculturation and psychology (e.g., Berry, 1990; Berry & Kim, 1988). A small body of empirical literature is also growing, addressing the effects of acculturation on mental health status (e.g., Burnam, Hough, Karno, Escobar, & Telles, 1987; Golding & Burnam, 1990; Kaplan & Marks, 1990; Krause, Bennett, & Tran, 1989; Nguyen & Peterson, 1993; Streltzer, Rezentes, & Arakaki, 1996).

In spite of the increasing interest in and encouraging development on the issue of acculturation and mental health, a number of conceptual and methodological issues remain to be identified and addressed before prudent research planning and meaningful interpretation can be made. To address some of the relevant theoretical and empirical issues, the purpose of the current study is twofold. First, we will review some of the recent findings regarding acculturation in the mental health literature in conjunction with a discussion of some key conceptual and methodological issues encountered in this field of research. Second, to explore the role of acculturation and its association with mental health outcome, this paper will propose and examine a model that illustrates the process underlying the relationship between acculturation and mental health status.

Acculturation and Mental Health Status

Acculturation has been conceived as a dynamic process involving multiple aspects in which individuals gradually adjust to a new environment (Berry, 1990). The difficulties in translating the complex conceptualization into empirical research, however, are usually unmanageable in practice. As a result, research seldom went beyond a simple test of the direct relationship between the individual's level of acculturation and some forms of mental health measures, such as rates of hospitalization, presence of mental disorders, or level of symptomatology. In construing the possible direct relationship between acculturation and mental health, three types of relationship

have been speculated—positive, negative, and curvilinear (Rogler, Cortes, & Malgady, 1991).

First, in concordance with the notion that acculturation is a process of adaptation to a new cultural environment, acculturation is conceived to be positively correlated with mental health status. In this perspective, acculturation is regarded as the evidence that the individual has successfully adjusted to the new environment and, in fact, has become a member of the mainstream society, demonstrating competence in social and occupational functioning. On the contrary, a second perspective hypothesizes that high level of acculturation may heighten the individual's sense of dissonance and conflict. In other words, in attempts to achieve a balance between two cultures, individuals may experience more psychological distress that leads to deterioration in mental health. Finally, a third perspective proposes a curvilinear relationship between acculturation and mental health, suggesting that people halfway through the acculturation process are most susceptible to psychological disorders. It is postulated that both unacculturated and highly acculturated individuals may feel more comfortable being embedded in their respective cultural systems, either an ethnic enclave or the mainstream society, that are most familiar to them. In either case, psychological adjustment to the mainstream society is unnecessary or has been achieved. On the other hand, people midway in the process are actively struggling and coping with the stress and distress brought by the major life changes accompanied with acculturation. Consequently, the heightened stress and distress may render them more vulnerable to mental illness. The concept of acculturative stress (Berry & Annis, 1974) and its pathogenic consequences are implied in this hypothesis.

Recent Empirical Findings

The empirical research on acculturation and mental health status has demonstrated conflicting results. The majority of the past studies have focused on Latino (mainly Mexican) Americans/immigrants, Asian (mainly Chinese and Korean) Americans/immigrants, and Southeast Asian Americans/immigrants/refugees. A few studies were conducted among Hawaiians, African Americans, and minority groups in other countries (e.g., Canada, UK, and New Zealand). There is no obvious or consistent pattern of findings that can be identified, even when taking into account the particular population being studied. One exception is that refugee groups appeared to benefit from higher levels of acculturation, which was typically measured by language proficiency among this population. With the better command of English and more open attitudes toward the new environment, refugees tend to achieve better adjustment and mental health, as demonstrated among

Southeast Asians (Nicassio, 1985; Nicassio, Solomon, Guest, & McCullough, 1986; Westermeyer, Neider, & Callies, 1989), and Afghanistanians (Mghir, Freed, Raskin, & Katon, 1995).

Aside from the studies of refugees, we reviewed recent empirical studies conducted in the United States that addressed the issues of acculturation and mental health. No recent studies demonstrated a curvilinear relationship between acculturation and mental health. Six studies showed that acculturation was inversely associated with measures of depression or maladjustment among different populations, including elderly Chinese Americans (Lam, Pacala, & Smith, 1997), Latina mothers with mentally retarded children (Blacher, Shapiro, Lopez, & Diaz, 1997), and Latino Americans (Lang, Munoz, Bernal, & Sorensen, 1982; Masten, Penland, & Nayani, 1994; Neff & Hoppe, 1993; Zamanian, Thackrey, Starrett, & Brown, 1992). In contrast, three studies yielded a positive relationship between acculturation and elevated psychological disturbances. These included studies among Vietnamese American college students (Nguyen & Peterson, 1993), a community sample of U.S. born and non-U.S. born Mexican Americans (Burnam et al., 1987), and readmitted psychiatric patients of Mexican decent (Gonzalez & Cuellar, 1983). Moreover, four studies failed to find any significant relationship between acculturation and mental health outcome. These included research on Latino college students (Cuellar & Roberts, 1997), Puerto Ricans in the United States (Canabal & Quiles, 1995), elderly Korean immigrants (Lee, Crittenden, & Yu, 1996), and Hawaiians (Streltzer et al., 1996).

Finally, some studies demonstrated mixed results. Golding and Burnam (1990) found that acculturation had no effect on the level of depression when demographic and Socioeconomic States (SES) variables were controlled, but immigrant status (being U.S. born) predicted higher depression score even when controlling for demographic and SES variables. Kaplan and Marks (1990) discovered in a large community survey that the relationship between acculturation and depression varied as a function of the age group in question. Their study showed that whereas higher acculturation was found to associate with increased depression score among young adults, it was related to lower depression score among older adults.

Although the studies demonstrating the salutary effect of acculturation outnumbered the ones that proved otherwise, the dispute between the two major opposing positions is far from resolved. The studies that showed beneficial effects of acculturation, in general, had smaller sample size, targeted specific populations, and did not address the issue of confounding sociodemographic variables, such as education, SES, and country of birth. On the other hand, studies that demonstrated no relationship or mixed results tended to control for confounding factors and were much larger in scale (e.g., 1,244 respondents in Golding & Burnam, 1990; 3,084 in Kaplan

& Marks, 1990). The contradictory findings may have reflected the diversity in the reviewed studies with regard to their sample characteristics, factors examined, relevant variables included, and the particular definitions and measures used to assess acculturation and mental health status.

Compounding the lack of consistent findings in this field, these studies seldom extended beyond the simple test of direct relationship between acculturation and mental health status, leaving the conceivably complicated processes in which acculturation exerts influence on psychological outcome unexamined. Because of the lack of empirical research on the mechanism between acculturation and mental health functioning, the current understanding of the role of acculturation and its effect on mental health remains significantly limited. To bridge the gap in the literature, this study purports to explore the possible relationships between acculturation and its psychosocial correlates and the manners in which these factors are related to the individual's mental health status. Among a myriad of potentially relevant variables, the current research will focus on SES, social support, stress, personality, and health perception owing to their significance in mental health research as well as their likely associations with the construct of acculturation.

Research Basis for the Proposed Model

The notion of acculturation signifies the processes of coping and adjustment. It is conceivable that acculturation may covary or confound with the biopsychosocial factors that have been examined extensively for their effects on mental and physical health in the literature. Studying stress and coping, Antonovsky (1979) proposed a comprehensive model that forms the framework of this study. He specified a spectrum of factors, ranging from physical, emotional, cognitive, interpersonal, to macrosociocultural elements, as resistant resources that allow individuals to manage stress and maintain health. To move beyond the simple test of direct relationship between acculturation and mental health status, such an integrative approach is instrumental for advancing a holistic understanding of the link between the broad sociocultural indicator of acculturation and the psychological state of individual adjustment. Applying Antonovsky's model, the current study proposes SES, stress, support, personality, and health as the potential biopsychosocial correlates of acculturation and mental health status. By examining these variables in an integrative model, we believe that it is possible to isolate their specific as well as joint effects on mental health outcome and elucidate their interrelationships.

First, SES has been implicated in many studies as a confounding source when the effect of acculturation is under scrutiny (Amaro & Russo, 1987;

Moyerman & Forman, 1992). Moyerman and Forman (1992) conducted a meta-analysis of acculturation and adjustment, covering 49 reports across 11 classes of adjustment. They found that SES emerged as the most influential factor that modified the effects of acculturation on various measures of adjustment. The authors, however, acknowledged the difficulty of disentangling the effect of acculturation from that of SES on the outcomes of adjustment. In a review of acculturation and mental health status among Hispanics, Rogler et al. (1991) also cautioned researchers to maintain the conceptual distinctiveness of the constructs of acculturation and SES. In their suggestions for future research, they recommended an examination of how social stratification and acculturation may come to shape mental health status independently and interactively, which is a main focus of this study.

Moreover, the stress–diathesis model, as a prominent paradigm for depression etiology, stipulates that stress may trigger or precipitate depressive reactions if it exceeds the individual's coping capacity and constitutes a threat to one's normal functioning (Lazarus & Folkman, 1984). Considerable amount of evidence has established a strong association between a variety of stress measures (e.g., negative life events, chronic strains, and daily hassles) and physical and psychological measures of distress or well-being (see Avison & Gotlib, 1994; Kessler, 1997). Because of its close association with one's mental health status, stress and its relationships with other relevant factors (e.g., support, personality, and health perception) proposed in the model will be taken into account for their contributions to the individual's mental health status. In addition, the connections between stress, acculturation, and SES are also of interest in this study.

Furthermore, in coping with stress and maintaining mental health, a number of psychosocial resources and risk factors have been conceptualized to contribute to depression directly or moderate the impact of stress on psychological distress. Two factors—personality characteristics and social support—have been recognized either as protective or risk factors that directly affect the individual's mental health or as stress moderators that buffer or intensify the negative consequences of stress on one's well-being.

Social support has been among the most studied psychosocial resources in relation to physical and mental health. Although defined and assessed in a variety of ways (e.g., structural support, emotional support, and instrumental support), social support has been documented in numerous studies to influence physical and mental health not only directly but also by reducing the detrimental consequences brought on by stress (Lin, Dean, & Ensel, 1986; Robinson & Garber, 1995; Thoits, 1995). However, as Thoits (1995) pointed out, despite this well-corroborated relationship, the underlying mechanism through which social support affects physical and mental health still largely remains in need of elaboration and investigation.

Several personality constructs have been shown to constitute direct risk/protective factors of psychological and physical health or function as stress moderators, including locus of control (Wallston & Wallston, 1982), hardiness (Hull, Van Treuren, & Virnelli, 1987; Kobasa & Puccetti, 1983), and introversion and extroversion (Sutherland & Cooper, 1990). In depression etiology, autonomy and sociotropy have been conceptualized as personality vulnerabilities that are differentially sensitive to specific stressors to trigger depressive reactions (Blatt & Zuroff, 1992; Coyne & Whiffen, 1995). Nevertheless, research on personality and mental distress has usually been fraught with inconsistent findings and failed replications owing to methodological difficulties and confounding variables (see reviews by Cohen & Edward, 1989; Cox & Ferguson, 1991; Neufeld, 1989). Considering the mounting suggestions to identify and examine the mechanisms involving support and personality in mental health functioning, we conclude that framing support and personality factors in a more comprehensive network of factors and covariates may shed more light on their significance and related processes in psychological adjustment.

Finally, health, on the one hand, is considered as a function of the various psychosocial risk and resource factors discussed earlier, although, on the other hand, it also has a profound influence on the individual's psychological functioning. Health status has not only been routinely examined as an outcome in the research of acculturation (Moyerman & Forman, 1992), stress (Cohen & Herbert, 1996), and SES (Adler, Boyce, Chesney, Folkman, & Syme, 1993), but it also been implicated to contribute to depression (Stein, Miller, & Trestman, 1991). Therefore, it is included in our conjecture of the psychosocial network of factors mediating the relationships between acculturation, SES, and mental health status.

The main purpose of this study is to propose and test an integrated model that delineates the underlying processes through which acculturation influences mental health status. Using depressive symptom severity as the indicator of mental health status, the study intends to investigate the role of acculturation, in conjunction with SES as a covariate, in a model that also incorporates stress, social support, personality characteristics, and physical health perception as potential contributors to the depressive symptomatology.

On the basis of the review, it is hypothesized that acculturation and SES are correlated and may contribute to reducing psychological distress directly. Several factors are proposed as mediators between acculturation and SES on the one hand and mental health status on the other. Both increased acculturation and improved SES are hypothesized to lead to higher stress, stronger support, better health perception, and more salutary personality characteristics, all of which, except stress, may eventually affect the individual's mental health functioning in a positive direction. With regard to the
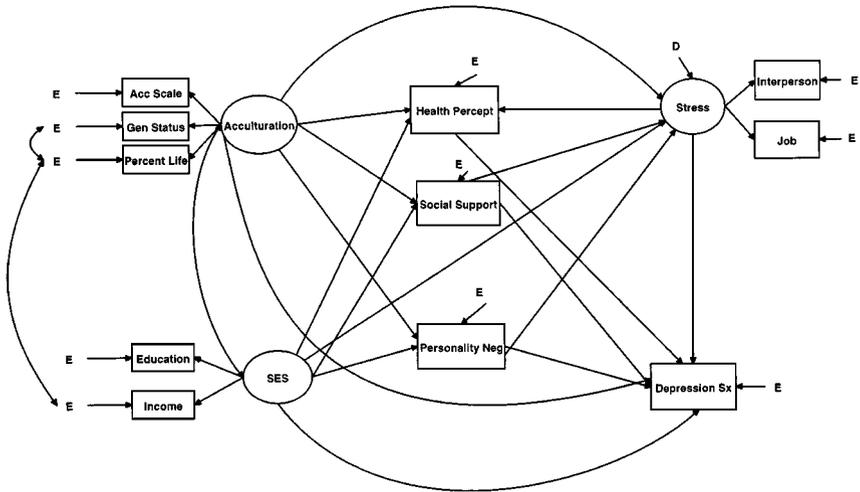
Fig. 1. Initial structural equation model of acculturation and depressive symptom severity. Latent constructs are shown in ellipses, and observed variables are shown in rectangles. (Acc Scale: acculturation scale score; Gen Status: generation status; Percent Life: percentage of life in the United States; Health Percept: health perception; Personality Neg: personality negativity; Interperson: interpersonal stress; Job: job stress; Depression Sx: SCL-90-R depressive symptom severity; E: error; D: disturbance.)

relationships among the proposed biopsychosocial mediators, it is postulated that the lack of support and the presence of negative personality characteristics may lead to elevated stress, which, in turn, negatively impacts on both the physical health perception and mental health status. Finally, it is also assumed that negative health perception may also contribute to higher depressive symptom severity. A graphical presentation of the conceptual model linking the aforementioned factors is illustrated in Fig. 1. The operationalization of each variable in the model will be discussed later in detail.

METHOD

Sampling Procedure and Participant Characteristics

The data in this study were collected from the Chinese American Psychiatric Epidemiological Study (CAPES), the first psychiatric epidemiological study of Chinese Americans in the United States. The population of interest in the CAPES was native-born Chinese Americans and immigrants of Chinese descent residing in Los Angeles County, between the ages of 18 and 65 years. Because Chinese Americans or immigrants in the United States

speak a variety of different dialects, the study is limited to those who speak English, Mandarin, or Cantonese as primary languages because these are the most commonly used languages among Chinese Americans. A stratified random sampling procedure with modifications to accommodate the specific needs of this study was implemented. The sampling and interview procedures are detailed in Takeuchi et al. (1998).

Among the selected respondent pool, 82% consented to participation and completed the interview, resulting in a sample of 1,747 participants in the survey. For our research purposes and to test the proposed model, the final sample selected for this study was composed of 983 participants who were employed at the time of interview. This decision was taken because we considered that job-related stress constitutes a major source of psychological distress in the contemporary living of Chinese Americans. In fact, census data showed that Asian Americans have the highest percentage of three or more earners per household when compared to the national and White samples (U.S. Bureau of the Census, 1995).

To reflect their stress experiences in both the working and interpersonal domains, only employed participants were included in the study. Consequently, 983 participants were selected for analysis. The final sample consisted of 555 (56.5%) males and 428 (43.5%) females, with a mean age of 38.67 ($SD = 9.52$) and mean educational attainment of 14.26 ($SD = 3.27$) years. Regarding other sample characteristics, 94.5% of the sample was composed of immigrants and 5.5% were born in the United States; their mean length of stay in the United States was 13.49 ($SD = 9.42$) years; 70.7% of the respondents were married and 29.3% were single, separated, or widowed at the time of interview. As to the language used in the interview, 67.2% were conducted in Mandarin, 23.5% in Cantonese, and 9.3% of the respondents were interviewed in English. The sampling procedure, response rate, and number of participants of this study were considered comparable to those of other studies of the similar nature.

Measures

Three latent constructs were present in the proposed model: acculturation, SES and stress. The latent construct of acculturation was formed by an acculturation scale, generation status, and proportion of life in the United States. SES latent construct was represented by education attainment and income level. The latent construct of stress was composed of interpersonal stress and job stress. In addition, the measures of physical health perception, perceived social support, personality negativity, and depressive symptom severity were also main variables for investigation in this study.

Acculturation

Three indicators were used conjointly to measure individuals' level of acculturation—the acculturation scale, generation status, and proportion of life spent in the United States.

Acculturation Scale. A 14-item acculturation scale, modified from Burnam et al.'s conceptualization (Burnam et al., 1987), was used to assess the respondents' level of acculturation. The scale taps a number of aspects in which acculturative processes take place. It assesses respondents' daily language use and preference in a variety of situations, patterns of social contact, and participation in cultural activities on a 5-point scale. The average score of all responded items was calculated for each individual. Persons scoring higher on the scale are considered as more acculturated. The scale demonstrated high reliability of internal consistency (Cronbach's α coefficient = .88). The range of corrected item-total correlations (CITC) was from .18 to .77 (mean CITC = .57).

Generation Status. Respondents' generation status was recorded as follows. Immigrants are treated as the first generation and assigned a value of 1; the U.S. born offspring of immigrants is considered second generation and assigned a value of 2; the third generation with an assigned value of 3 is the immediate offspring of the second generation, and so on. Therefore, the longer the family from which the respondent descends have resided in the United States, the more acculturated are they considered.

Proportion of Life in the United States. Because the great majority of our sample was composed of immigrants, to better differentiate among them in terms of acculturation, proportion of life spent in the United States was conceived to be another indicator of acculturation. People having stayed for a significant portion of their lives in the United States are thought to be more likely to become more acculturated through prolonged exposure and adaptation to the American lifestyle (Ghaffarian, 1998; Marin, Sabogal, Marin, & Otero-Sabogal, 1987). The index of proportion of life in the United States was derived by dividing the respondent's length of stay in the United States in years by one's age. Individuals with higher percentage were considered to be more acculturated.

Socioeconomic Status

Each Participant's socioeconomic status was jointly represented by education attainment and family income level. Education attainment was measured by the number of years of formal education that the respondents had received at the time of interview.

The income variable and its response categories were the same as those used in the National Comorbidity Study (NCS), one of the largest psychiatric epidemiological study in the United States (Kessler et al., 1994). Family income was reported by participants, choosing an income level in which their annual family income fell. The full range of reported annual family income, from no income to $150,000 and above, was divided into 23 income levels. The increments in income levels were scaled such that the income variable was largely normally distributed. This scaling approach was to ensure that the income variable was sensitive enough to reflect the financial differences among individuals while reducing the bias caused by a few extreme values. Each participant's family income was recorded on a scale ranging from 1 to 23, in which greater value indicated higher income.

Perceived Support

Social support from various sources perceived by the respondents was measured, using the social support scale developed by Turner, Frankel, and Levin's measures of affective support (Turner, Fronkel, & Levin, 1983). The scale includes 18 items tapping perceived social support from family, spouse, and friends across a number of areas such as emotional understanding, appreciation, willingness to help, confiding relationship, and trust. Each item was rated on a 4-point scale, with a greater value indicating higher perceived support. The adjusted average of all answered items (total score divided by the total number of items answered) was computed to form a single index of perceived social support. The internal consistency among items, measured by Cronbach's alpha coefficient, was .90, and the range of CITC was between .40 and .66 (mean CITC = .56), both showing great scale coherence and reliability.

Personality Negativity

The measure of personality negativity was derived from a collection of personality scales incorporated in the survey, including a modified hardiness scale (Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982; Maddi & Khoshaba, 1994) and a short version of Levenson's locus of control scale (Levenson, 1974; Lumpkin, 1985; Sapp & Harrod, 1993). Respondents were asked the degree to which they agreed with each statement about themselves. Items were presented on a 4-point scale, ranging from 1 as *not true at all* to 4 as *very true*.

Factor analysis was performed on the original 43 personality items to explore the underlying structure in these items. The method suggested by

Comery and Lee (1992) and the scree test were used to determine the appropriate number of factors to be extracted and rotated. The 4-factor solution derived from minimum residual extraction method appeared to be optimal. Oblique rotations were performed to reflect the relationships between factors. On the basis of the analysis, the 43-item scale could be best described by three highly correlated factors ($r = .46–.54$) and an additional factor fairly independent from the others ($r = .01–.28$).

The three closely related factors contained a total of 33 items, tapping personal characteristics of feeling alienated and lacking control over one's life, being pessimistic or fatalistic about one's situation, and expressing predilection for rigid routine, convention, and stability while showing a low tolerance for ambiguity. The fourth factor, which was dropped from further analysis because of its relative independence from other factors, reflected internal locus of control and positive attitudes.

Because the remaining three factors were highly associated, for the purpose of conceptual parsimony and to facilitate analysis, they were merged into a global index of personality propensity by taking the adjusted average of the 33 items. As these items transpire an overall sense of taking a negative approach to one's life situations, it was termed personality negativity. The Cronbach's alpha of these items was .89, and the range of CITC was from .22 to .50 with a mean of .44, signifying satisfactory internal consistency of the composite scale.

Health Perception

One item of self-health perception was included in the model. Respondents were asked to rate their overall physical health on a 5-point rating scale, ranging from *poor* to *excellent*. Higher rating indicated better perceived overall physical health.

Interpersonal and Job Stress

Two types of stress were included in the study: interpersonal stress and job stress. Both were constructed from an abridged version of the Daily Hassles Scale (Kanner, Coyne, Schaefer, & Lazarus, 1981). Participants responded to each item by rating the degree to which they were bothered by the situation described in the item on a 4-point scale, with 1 standing for *not at all* and 4 meaning *a lot*. Relational and work-related stress are two major sources of stress that have been illustrated in various studies on depression (Abramson, Metalsky, & Alloy, 1989; Beck, 1983; Blatt & Shichman, 1983; Blatt & Zuroff, 1992). The differentiation between two types of stress

represents the two major sources of stress that contribute to individuals' psychological distress.

The measure of interpersonal stress is composed of six items assessing the extent to which the respondent is bothered by various interpersonal difficulties (e.g., problems with children, not seeing enough people, not enough time for family). The measure of job stress comprises nine items tapping various stressful situations experienced at workplace, such as problems with fellow workers, unchallenging work, and concerns about job security. The internal consistency for interpersonal and job stress was .66 and .82 (Cronbach's α coefficients), respectively. The range of CITC was between .24 and .41 (mean CITC $= .36$) for interpersonal stress, and it was between .36 and .66 (mean CITC $= .52$) for job stress. The adjusted average for each scale was computed for further analysis.

Depressive Symptom Severity

The depressive symptom severity was assessed by the depression subscale in the Symptom Checklist 90-Revised (Derogatis, 1977). The subscale is composed of 13 items, tapping a broad range of symptoms that are associated with manifestations of clinical depression. Representative symptoms include dysphoric mood, loss of interest and vitality, lack of motivation, feelings of hopelessness and worthlessness, and thoughts of suicide. Participants responded to the items by rating the degree to which they experienced these symptoms during the past seven days on a 5-point scale ranging from 1 (*not at all bothered*) to 5 (*extremely bothered*). The adjusted average score was calculated for further analysis.

Although the current study focused exclusively on depressive symptoms, it is noteworthy that the correlation between SCL-90R Depression subscale and the full-scale Global Severity Index (GSI) was as high as .92 ($p < .0001$), indicating that depressive symptoms represented a major component of the psychological distress in this sample.

Analysis Plan

Formulation of the Structural Equation Model

As mentioned earlier, the purpose of this study is to gain a better understanding of the way that acculturation may influence mental health status. It is proposed that acculturation is related to a number of psychosocial and physical health factors that mediate its effect on mental health status represented by depressive symptom severity. The proposed structural model in

Fig. 1 illustrates the hypothesized relationship between depressive symptom severity and various latent constructs and measured variables. In Fig. 1, latent constructs, as measured by more than one indicators, are represented by ellipses, whereas the observed variables, assessed by a single indicator, are shown in rectangles.[3]

The model involves three latent constructs (acculturation, SES, and stress) and four measured variables (physical health perception, perceived social support, and personality negativity). Acculturation is manifested by the score on the acculturation scale, generation status, and proportion of life in the United States; SES is indicated by family income level and educational attainment; stress construct is composed of interpersonal stress and job stress. In addition, also included in the model are physical health perception, perceived social support, and personality negativity, which are hypothesized to mediate the relationships between acculturation, SES, stress, and depressive symptom severity. To provide a metric for the latent constructs and to make the measurement model identifiable, the first indicator of each latent construct (acculturation scale score, education attainment, and interpersonal stress) is set to 1.00.

The main focus of this study is on the multiple pathways through which acculturation contributes to mental health status, either positively or negatively. Acculturation aside, the only other "independent" (exogenous) variable in the model is SES. The directionality of influence between acculturation and SES is not specified because there is no strong theoretical ground that may lead us to make predictions either way. Therefore, SES is made to correlate with acculturation, based on the observations in the past research (e.g., Cuellar & Roberts, 1997). Because no specific predictions of relationship or nonrelationship between either of the independent latent constructs (acculturation and SES) and the rest of the variables are speculated, it is hypothesized that both acculturation and SES have a direct contribution to each resource (social support) or risk (personality negativity and stress) or consequence (health and depressive symptom severity) variables specified in the model.

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[3]In the structural models presented, some components are latent constructs (in ellipses) and others are directly measured variables (in rectangles). This presentation is consistent with the traditional diagrammatic illustration of the model in structural equation modeling, including the statistical software (EQS) used for our analysis. EQS is based on the Bentler–Weeks approach to structural equation modeling (Bentler & Weeks, 1980). The Bentler–Weeks model and EQS program allow measured variables (in rectangles) to predict latent constructs (in ellipses) directly, whereas users of other programs (e.g., LISREL) have to "trick" the program to run by creating a dummy "single-indicator construct" that is measured by one indicator with its path coefficient equal to one and no measurement error. Our analysis and presentation is based on the Bentler–Weeks model. We consider that it would be more reader-friendly because readers can tell directly from the diagrams what variables were used in the analysis.

Four variables are conceived to mediate the relationship between acculturation, or SES, and depressive symptoms. Perceived social support is thought to be negatively associated with stress, whereas personality negativity is predicted to have a positive relationship with stress. Physical health perception is considered as a function of stress. Finally, heightened stress, lowered physical health perception, diminished social support, and elevated personality negativity are thought to contribute to the more severe depressive symptomatology.

Two pairs of correlated residuals are included in the model. In a preliminary analysis, it was found that generation status and proportion of life in the United States shared a significant portion of variance that could not be accounted for by the common variance represented by the acculturation latent construct. This specific correlation can be understood on the ground that except for the first generation (immigrants) and some rare cases, anyone beyond the first generation would have spent their whole of life (100%) in the United States. It was also noticed that the proportion of life in the United States and income level, too, shared some specific variance that is common to each other. This can be explained by the observation that for immigrants, of whom the great majority of our sample was composed, their financial situation improves as the length of time that they stay in the country increases. The correlation of residuals of the proportion of life in the United States and family income level is reflective of this trend.

There are 11 measured variables in this study, which result in 66 data points in the variance–covariance matrix. The hypothesized model contains 38 parameters to be estimated, including 21 regression coefficients (paths and loadings), 14 variances, 1 covariance between latent constructs, and 2 covariances between residuals. The ratio of cases to observable variables is 89:1; the ratio of cases to parameters is 25:1. Both are satisfactorily high ratios in the practice of structural equation modeling.

Data Analysis Procedure

The model depicted in Fig. 1 was subjected to structural equation modeling based on Bentler and Weeks (1980), using the EQS program developed by Bentler (1995). Raw data and the subsequently created covariance matrix were used for analysis.

Prior to the analysis, the multivariate and univariate normality assumptions of the data were examined. Inspection of the measured variables indicated that they were significantly skewed. No transformation was made to the variables in the data because it was reasonable to expect that measures, such as acculturation, support, stress, and depression, are skewed in

the population. Examination of multivariate kurtosis (Mardia's coefficient = 76.73, normalized estimate = 70.07) also indicated that the measured variables were not normally distributed on each pair of bivariate surface. A few outliers were identified by the EQS program. Considering that the sample size was sufficiently large, it was decided that they were kept in the data and no action would be taken unless the results of data analysis indicated otherwise. Given that the data did not fulfill the multivariate normality assumption, maximum likelihood (ML) estimation method with robust statistics (Satorra–Bentler scaled test statistic and robust standard errors) was used to estimate the parameters in the model. The Satorra–Bentler scaled chi-square was employed to evaluate the goodness of fit of the model, and standard errors were adjusted in testing parameter significance. Tests of statistical significance of the estimated parameters (path coefficients) were set at .05 level for two-tailed tests. Twenty-eight (2.85%) cases were eliminated by the EQS program from the analysis because of the presence of at least one missing value.

The model was evaluated in three ways. First, the chi-square test was used to evaluate the independence model that postulated that all variables were uncorrelated. Second, the chi-square test was used to evaluate the hypothesized model and its improvement from the independence model. With a large sample, the chi-square test, however, may not be indicative of model fit because any trivial difference between the theoretical and expected value will produce statistically significant but empirically negligible results. Therefore, four fit indices, Bentler–Bonett normed and nonnormed fit index, comparative fit index (CFI), and robust CFI were used to evaluate the goodness of fit of the model. Finally, the standardized residual matrix was inspected for any large deviation from zero, which was indicative of the lack of fit between the proposed model and empirical data. The Lagrange multiplier (LM) tests were employed to detect any blatantly omitted and misspecified paths that conflicted with the observed data. The LM tests would also serve as recommendations for modification and improvement of the model in the further analysis.

Post Hoc Analysis

To appraise the robustness of the model, two post hoc analyses were performed. In the original model, family income was used as one of the indicators of SES. It raised the concern that family income might obscure the individual SES because the household size could be quite variable for people with the same family income. A separate analysis was performed using

the estimated average income per capita as an SES indicator to examine if the model would still hold with this minor modification.

In addition, because gender differences have been amply demonstrated in epidemiological and etiological studies of depression (Blazer, Kessler, McGonagle, & Swartz, 1994; Culbertson, 1997), it is possible that gender-specific mechanisms might be involved in the relationship between acculturation and mental health status for men and women. A simultaneous multi-sample structural equation modeling analysis (Bentler, 1995) was conducted to evaluate if the gender-specific analyses would yield similar results for men and women.

RESULTS

The mean, standard deviation, and univariate skewness and kurtosis of each variable are shown in Table I. The zero-order correlations among the 11 studied variables are presented in Table II.

Model Estimation and Modification

Maximum likelihood and robust estimation methods were performed to estimate the parameters in the hypothesized model. The independence model, assuming that no correlations exist among the latent and observed variables, was immediately rejected ($\chi^2 = 2142.48, df = 55, N = 954, p < .001$). The hypothesized model was tested next. Although the chi-square test ($\chi^2_{ML} = 76.72$, Satorra–Bentler scaled $\chi^2 = 72.14, df = 28, N = 954, p < .001$) indicated a difference between the estimated and observed co-variance matrices, this was likely due to the large sample size. The model, in fact, demonstrated great improvement from the independence model.

Table I. Descriptive Statistics of the Variables in the Study ($N = 983$)

	Mean	SD	Skewness	Kurtosis
Acculturation scale	2.44	0.78	0.63	−0.08
Generation status	1.09	0.41	5.95	39.85
Proportion of life in the United States	0.36	0.24	1.05	0.80
Education attainment (in years)	14.25	3.27	−1.52	2.13
Income level	17.66	3.44	−1.73	4.14
Physical health perception	3.54	0.96	−0.43	−0.35
Perceived social support	3.31	0.44	−0.39	−0.34
Personality negativity	7.09	0.89	0.02	1.47
Interpersonal stress	1.30	0.37	1.50	2.13
Job stress	1.35	0.45	1.79	3.47
SCL-90 Depression score	1.22	0.32	2.73	10.47

**Table II.** The Zero-Order Correlations Between the Studied Variables

	AS	GS	PL	ED	IL	PH	SS	PN	IS	JS	DS
Acculturation scale (AS)	1.00										
Generation status (GS)	.44**	1.00									
Proportion of life in the United States (PL)	.69**	.54**	1.00								
Education attainment in years (ED)	.37**	.08**	.24**	1.00							
Income level (IL)	.23**	.05	.26**	.29**	1.00						
Physical health perception (PH)	.19**	.06	.21**	.25**	.18**	1.00					
Perceived social support (SS)	.17**	.12**	.16**	.18**	.17**	.19**	1.00				
Personality negativity (PN)	−.28**	−.20**	−.26**	−.20**	−.12**	−.17**	−.18**	1.00			
Interpersonal stress (IS)	.12**	.08*	.08*	.08*	−.03	−.07*	−.17**	.00	1.00		
Job stress (JS)	.09**	.06*	.04	.01	−.02	−.05	−.21**	.10**	.38**	1.00	
SCL-90 Depression score (DS)	.03	.02	−.02	−.07*	−.11**	−.27**	−.22**	.15**	.37**	.46**	1.00

$*p < .05$, 2-tailed; $**p < .01$, 2-tailed.

A Chi-square difference test proved that the improvement was significant ($\chi^2_{\text{diff.}} = 2065.76$, $df = 27$, $N = 954$, $p < .001$). Because the sample size was large, fit indices would provide better measures of model fit. The CFI was .98, robust CFI was .97, Bentler–Bonett nonnormed fit index was .95, and Bentler–Bonett normed fit index was .96. All goodness-of-fit indices suggested that the model fit the data well.

Examining the residual covariance matrix, it was found that all residuals were small and distributed symmetrically around zero. The average absolute standardized residual was .02 with the largest absolute standardized residual being −.09. In accordance with the fit indices, the small and near-zero residuals also suggested that the hypothesized model fit the data well. Lagrange multipliers were examined, and no outstanding improvement of the model was recommended. It was, therefore, concluded that no model misspecification was present in the hypothesized model. In sum, all methods of evaluation of model fit indicated that the proposed model was adequate and satisfactory in accounting for the relationships among acculturation, various psychosocial variables, and the severity of depressive symptoms.

Although no major modification was needed based on the results of model evaluation, the significance tests of path regression coefficients showed that several paths did not reach statistical significance. These included the six paths between acculturation and health, acculturation and social support, acculturation and depression, SES and stress, social support and depression, and personality negativity and depression. To test whether a more parsimonious model would fit the data equally well, the aforementioned paths were eliminated by setting the parameters to zeros, and the new model was subjected to analysis with the same method. The revised model fit the data equally well as indicated by the chi-square tests ($\chi^2 = 84.00$, Satorra–Bentler scaled $\chi^2 = 78.5$, $df = 34$, $N = 954$, $p < .001$) and various fit indices (CFI = .98, robust CFI = .97, Bentler–Bonett nonnormed fit index = .96, and Bentler–Bonett normed fit index = .96). The Chi-square difference test was used to evaluate the relative improvement or deterioration of the new model. It showed no significant difference between the two models, $\chi^2_{\text{diff.}}$ ($df = 6$, $N = 954$) $= 7.28$, $p > .05$. The average absolute standardized residual was .02, and the largest was .09, indicating that the revised model was comparable to the original one. Comparison of the two models revealed no markedly different path coefficients in the more parsimonious new model. The only more noticeable difference was the path from SES to depression score. The standardized coefficient was reduced from .15 ($p < .01$) to .09 ($p < .05$), but it maintained its significance. The modified model is presented in Fig. 2. The final model shown in Fig. 2 explained 48.3% of the total variance in depressive symptom severity, demonstrating satisfactory explanatory utility.
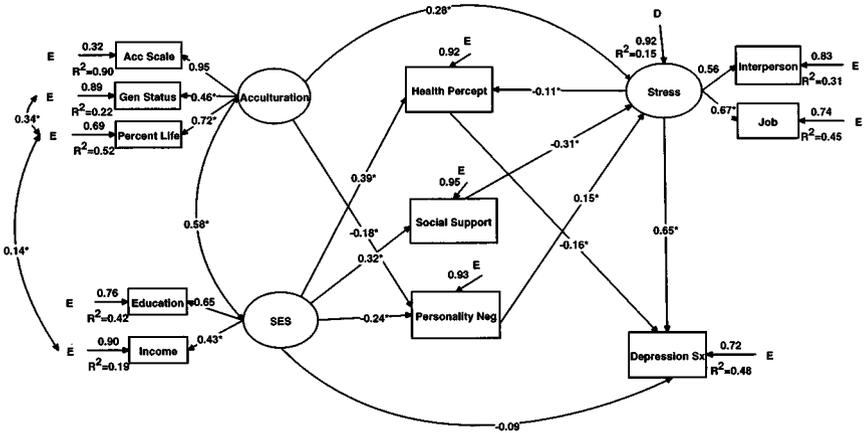
Fig. 2. Final structural equation model of acculturation and depressive symptom severity, $\chi^2 = 84.00$, Satorra–Bentler scaled $\chi^2 = 78.5$, $df = 34$, $N = 954$, $p < .01$; CFI = .98, robust CFI = .97. All parameter values shown are significant at .01 level, except the path between SES and depressive symptom severity (.09) that is significant at .05 level. (Acc Scale: acculturation scale score; Gen Status: generation status; Percent Life: percentage of life in the United States; Health Percept: health perception; Personality Neg: personality negativity; Interperson: interpersonal stress; Job: job stress; Depression Sx: SCL-90-R depressive symptom severity; E: error; D: disturbance.)

Post Hoc Analyses

Using the same model setup and method, we also tested the model in which family income was replaced by estimated average income per capita (family income divided by the estimated family size) on the ground that it might provide better measurement for the individual SES. The overall fit of this model revealed no significant differences from the original model, with the $\chi^2_{ML} = 98.09$, Satorra–Bentler scaled $\chi^2 = 91.70$ ($df = 34$, $N = 954$, $p < .001$), CFI = .97, and robust CFI = .96. The parameter estimates and their significance level also remained the same as those in the original model.

To further evaluate the robustness of the model shown in Fig. 2, we examined if the model was comparable for men and women. This was achieved by testing the model with the simultaneous multigroup structural equation modeling across gender groups. In the multigroup modeling, the parameters (path coefficients) in the measurement and structural models were constrained to be equal across gender groups. The LM tests were used to evaluate if each of the cross-group equivalency constraints were reasonable.

The results of LM tests suggested that some parameter constraints might be questionable. When the questionable across-group equivalency constraints were systematically relaxed, one at each step, only removing the

constraints of the parameters for the paths between SES and personality negativity and between SES and social support would significantly improve the model fit, $\chi^2_{\text{diff.}}$ $(df = 2, N = 983) = 19.18$, $p < .01$. It was observed that the parameter estimate between SES and personality negativity was $-.43$ for women and $-.23$ for men, and the parameter estimate between SES and social support was .74 for women and .27 for men. Although the results showed that these two path parameter estimates were relatively stronger for women than for men, they were statistically significant for both gender groups.

After relaxing the two questionable cross-group constraints, the multi-group analysis demonstrated that the model fitted the data well, with the overall χ^2 $(df = 70$, combined $N = 954) = 106.84$, $p < .01$, CFI $= .98$, and Bentler–Bonett nonnormed fit index $= .97$. All parameter estimates (path coefficients) in the measurement and structural models remained significant, and they were essentially equivalent to those presented in the single group analysis except the two paths showing gender differences.

Acculturation and Depressive Symptom Severity

The findings in Fig. 2 showed that though originating from different sources, the latent acculturation construct and SES construct were significantly correlated with each other (standardized coefficient $= .58$, $p < .01$).

According to the results, acculturation may affect the severity of depressive symptoms via three indirect pathways. First, higher acculturation was associated with higher stress (standardized coefficient $= .28$, $p < .01$), which in turn led to more severe depressive symptoms (standardized coefficient $= .65$, $p < .01$). Higher stress, on the other hand, was also related to deteriorated health perception (standardized coefficient $= -.11$, $p < .01$), leading to worsened depressive symptoms (standardized coefficient $= -.16$, $p < .01$). Second, the relationship between acculturation and depression was confounded by SES (standardized coefficient $= .58$), which affected depressive symptoms directly or indirectly through a number of other factors. The direct and indirect contributions of SES to depressive symptom severity will be discussed later. Third, higher acculturation was associated with lower personality negativity (standardized coefficient $= -.18$, $p < .01$) that led to the perception of lower stress (standardized coefficient $= .15$, $p < .01$), then in turn less severe depressive symptoms. Acculturation was not found directly related to health perception and support; its relations to health and support appeared to be explained by its association with SES.

Finally, in terms of the direct or indirect effect, acculturation level was not found to have a significant direct impact on depression (standardized coefficient $= .03$, $p > .05$) in addition to the indirect pathways just discussed.

The standardized coefficient for the indirect effect of acculturation on depression was .17 ($p < .01$). It was interpreted that controlling for SES, acculturation was associated with more elevated depressive symptoms; that is, aside from its relation to SES, acculturation contributed to depressive symptoms primarily by its association with higher level of stress experienced although this trend was somewhat offset by its connection with lower personality negativity but only to a limited extent. On the other hand, level of acculturation was positively correlated with SES whose independent effect on depression was largely positive. An examination of the role of SES and its psychosocial correlates in the pathogenic process of depression is discussed as follows.

SES and Depressive Symptom Severity

As mentioned previously, the participants' SES confounded the relationship between acculturation and depression. According to the findings, SES affected the expression of depression through four pathways, one direct and the other three indirect. It was shown that SES had a direct effect on the severity of depression; that is, the participants with higher SES tended to manifest less severe depressive symptoms (standardized coefficient = $-.09$, $p < .05$). Although significant, this direct path did not seem very strong.

On the other hand, three pathways involving different mediators represented the indirect contributions of SES to lower depression. First, the effect of SES on depression was mediated by perceived social support and stress. Chinese Americans with higher SES were more likely to perceive more support from friends, family, and spouse (standardized coefficient = .32, $p < .01$), and more support led to less stress (standardized coefficient = $-.31$, $p < .01$) and then less severe depressive symptoms. Moreover, personality negativity and stress also mediated the relationship between SES and depression. Participants with higher SES were more inclined to score lower on personality negativity (standardized coefficient = $-.25$, $p < .01$), that is, alienation, powerlessness, pessimism, fatalism, and rigidity, which led to lower stress experienced (standardized coefficient = .15, $p < .01$) and resulted in less severe depressive symptoms. Finally, perceived health also mediated the effect of SES on depression. People with higher SES were more likely to perceive themselves having better health (standardized coefficient = .39, $p < .01$), and the perceived better health in turn reduced the likelihood of becoming depressed (standardized coefficient = $-.16$, $p < .01$).

Considering its relation to depression, SES, as a whole, appeared to be an important resource in reducing depression (standardized coefficient

of total effect of SES $= -.24$, $p < .01$). As illustrated in the effect decomposition, not only was SES directly related to the reduced depressive symptom severity (standardized coefficient of direct effect $= -.09$, $p < .05$), even stronger was its indirect relationship with lower depression (standardized coefficient of indirect effect $= -.15$, $p < .01$) through its associations with better support system, lower personality negativity, and better health perception.

DISCUSSION

The main purpose of this study is to propose a conceptual framework in an effort to understand the role of acculturation in a network of its psychosocial correlates relevant to mental health. The final model suggests that acculturation, in conjunction with SES, exerts impact on mental health status through a number of factors, including stress, support, health perception, and personality characteristics.

Acculturation, SES, Stress, and Depression

Acculturation and SES are strongly correlated in our sample, which is mainly composed of immigrants of Chinese descent. This association was often observed in the literature (e.g., Amaro & Russo, 1987; Negy & Woods, 1992). The acculturation construct in this study is represented by a variety of measures tapping various aspects of adaptation including language use and preference, social contact, cultural activities, generation status, and length of stay in the United States. These elements appear to concur with the higher economic gains and education attainment in a predominantly immigrant population.

The directionality of the influence between acculturation and SES is not specified in our model on the basis that multiple reasons may result in their correlation. For example, it may be that Chinese Americans with higher SES tend to have more exposure to and participation in the mainstream American society, which leads to higher acculturation. Alternatively, people who are more acculturated may have better career opportunities conducive to better employment options and higher financial gains. It is also plausible that there is a reciprocal relationship between the two in which the increase of one would lead to the improvement of the other. Furthermore, there may exist some extraneous factors, such as parents' acculturation level and SES, that affect the individual's level of acculturation and SES at the same time, resulting in the observed correlation. These possible scenarios may make interesting hypotheses for the future research

attempting to unravel the directional relationship between acculturation and SES.

With regard to mental health status, Cuellar and Roberts (1997) argued that SES rather than acculturation per se was more predictive of severity of depression among Latino college students. On the other hand, after reviewing 30 studies regarding the relationship between acculturation and mental health status among Hispanics, Rogler et al. (1991) found that approximately equal numbers of studies demonstrated positive as well as negative results. Echoing Marin et al.'s proposition (Marin et al., 1987) to keep the construct of acculturation separate from SES, they advocated investigating the interactive as well as the independent processes in which acculturation and SES shape mental health status. Our study has, at least partially, provided some answers to this quest.

This study demonstrated that the effect of acculturation on mental health is primarily indirect. In fact, no significant direct path between acculturation and depressive symptom severity was observed in the model. The findings revealed that acculturation level seems to have a "paradoxical" effect on mental health. The results showed that Chinese Americans with higher levels of acculturation tend to experience more stress, which contribute to more elevated depressive symptoms. On the other hand, higher level of acculturation is associated with higher SES, which carries a salutary effect on mental health as depicted in the study. More specifically, more acculturated Chinese Americans tend to attain higher SES, and higher SES is associated with perceptions of better physical health, more perceived social support, and lower personality negativity. All of these aforementioned factors are either directly related to lower level of depression (e.g., health) or indirectly associated with depressive symptom severity through their connections to higher or lower stress (e.g., personality negativity and support). Through either the direct or indirect pathways, higher SES is related to decreased depressive symptom severity. Moreover, it is noted that SES appears to be a more influential factor on mental health for women than for men. Women with lower SES in our sample were particularly at risk for more pronounced depressive symptoms; due to that they were also likely to have much less support and more negative personality characteristics. This pattern also held for men, but to a lesser degree.

The two major counteractive pathways from acculturation to psychological disturbances illustrate the complicated psychosocial processes involved in the relationship between acculturation and mental health among Chinese Americans and immigrants. The results may also help to explain the contradictory or nonsignificant findings in the literature. Merely testing the direct relationship between acculturation and mental health outcome may obscure

the dual role that acculturation plays in psychological functioning. With opposing trends, the two main pathways from acculturation to mental health status may offset each other's effect, thus resulting in the observation of a null relationship. In this study, the zero-order correlations between depression and three indicators of acculturation are nearly zero and not significant, and the direct path from acculturation to depression is not significant, either. Both demonstrate the problem of examining the direct relationship between acculturation and mental health status without considering other contributing or confounding factors.

Alternatively, if some forms of SES measures are controlled, acculturation may be found related to more severe depressive symptoms by its association with higher level of stress among certain populations (e.g., Burnam et al., 1987; Cuellar & Roberts, 1997; Kaplan & Marks, 1990; Nguyen & Peterson, 1993). On the other hand, under certain conditions, such as when SES-related factors are not measured and not controlled, or when the variability of stress level experienced by individuals is restricted, it is plausible that acculturation may seem to exert salutary influence on mental health because of its association with SES. As demonstrated in our analysis, when studying acculturation and mental health, it is of crucial importance to incorporate factors that may confound with acculturation. By incorporating relevant psychosocial correlates, the functional role of acculturation may be better understood, and the psychological processes in which individuals adjust to meet the novel environmental demands can be pinpointed more precisely.

On the basis of the findings, some implications for the development of more culturally responsive mental health services for Chinese Americans can be drawn. First, although individuals at different levels of acculturation may be at risk for mental health problems, different risk or protective mechanisms are involved for the more and the less acculturated. For the more acculturated, their strengths reside in the higher SES and the psychosocial resources that accompany the better financial and educational background. Nevertheless, they also tend to be exposed to more elevated stress in social situations and occupational arena. For this acculturation group, prevention and intervention efforts need to address their stress experiences and the detrimental consequences resulting from exposure to the prolonged and intense stress in work and interpersonal interactions. On the other hand, the less acculturated individuals are likely to hold lower socioeconomic positions, rendering them at higher risk for mental distress because of the lack of psychosocial protective resources. To achieve the goal of prevention, community-based interventions for the less acculturated population should be directed to improving their education and economic situation, providing

and rallying social support, investing the sense of empowerment, and alleviating the feelings of alienation and pessimism. Therefore, from a community psychologist's perspective, attending to the issue of acculturation may not only promote understanding of the client but also facilitate the development of effective intervention plans.

Strengths and Limitations

Several strengths and limitations of this study deserve further discussion. First, the characteristics of our sample need to be considered before any broad generalization can be made. The studied sample is composed of Chinese Americans who were employed at the time of interview, and the great majority of them are foreign-born immigrants. Considering the characteristics of the sample, caution should be exercised when making inference on Chinese Americans of specific subgroups, such as the elderly, adolescents, and individuals who are not working. The same caution should also be kept in mind when making generalizations to other ethnic groups. The social, cultural, political, and historical context in which a particular immigrant group arrived in the United States may shape their acculturation experiences in a unique way. For example, as suggested by Berry and Kim (1988), the acculturation experience of refugees may be vastly different from others because of the conditions under which they were forced to flee their original war-torn countries. On the other hand, it is noteworthy that our sample is a representative community sample and participants were selected based on a stratified randomization procedure. In addition, the sample size is rather large in studies of this kind. The representativeness and size of the sample allow us to draw inferences and conclusions with sufficient confidence. Moreover, the factors examined in this study are part of the experiences common to people with different cultural backgrounds. It is hoped that this study may, at least, shed some light on the psychological mechanism of acculturation that is general to different cultural groups who all share similar immigration experiences in their new country.

Second, the design of the study and data collected are cross-sectional, diminishing the study's capacity to draw causal inferences. For example, it is always possible that depressed people may generate more stress and affect their social and occupational functioning, resulting in socioeconomic downward drift. This scenario might also result in a similar pattern of relationships observed here. On the other hand, in defense of our findings, some longitudinal studies have shown that the effects of support, personality, and stress on depression over time are consistent with the results in this study (e.g.,

Holahan & Moos, 1991; Lin, 1986). Our findings, at least, provide support-
ing evidence for these observations in a cross-sectional time frame. However,
the temporal effects of acculturation or SES and their psychosocial correlates
have not been explored in the literature. To make causal inferences of the
role of acculturation in the process of immigration and adaptation over time,
a longitudinal study addressing the same theoretical issues as in this study is
strongly recommended.

Furthermore, the measures of acculturation used in this study may pose
another potential issue. Although this construct has been discussed exten-
sively in the literature (Berry, 1990), acculturation is conceptualized and
operationalized in a variety of ways by different researchers. Language pref-
erence, self-identification, and participation in cultural activities are among
the most widely used approaches. The notion of biculturalism and debate of
unidimensionality versus multidimensionality of the construct have added to
the already complicated picture (LaFromboise, Coleman, & Gerton, 1993).
To avoid confusion, it should be emphasized that although covering various
aspects of adaptation (e.g., such as language, social contact, cultural activi-
ties, and length of stay), the acculturation construct employed in the study
assumes unidimensionality. Higher acculturation in our study is viewed as
increased adoption of and adjustment to the mainstream culture, whereas a
person's adherence to traditional culture is either neglected or treated as less
acceptance of the new culture. It is suggested that future research expand
the conceptualization and use multiple indicators assessing levels of accul-
turation to both cultures to which the individual is exposed. Therefore, a
more comprehensive understanding of the different aspects of acculturation
and their impacts on mental health may be achieved.

It also should be noted that the use of depressive symptom severity, an
indicator of deficit rather than well-being, to assess mental health status may
call for criticism. Although not trying to justify the potential limitations of
this practice, we would like to point out that this trend in the research of ac-
culturation and mental health has been widespread and it deserves further
considerations. In Rogler and his colleagues' review (Rogler et al., 1991)
more than three fourths of the studies employed psychiatric symptoms, psy-
chological distress, and deviant behaviors as measurements of mental health
status (see also Moyerman & Forman, 1992). Although studying deficits as
a function of acculturation may inform the installment of community pre-
vention and intervention programs, we recognize the limitation that this
study did not directly address the positive outcomes of acculturation, such
as well-being and adjustment. Future research incorporating positive out-
come measures of mental health may bring significant contributions and ad-
vancements to our understanding of the relevance of acculturation in mental
health functioning.

Recommendations for Future Research

In addition to the issues just discussed, a few lines of inquiry deserve further exploration. First, the psychological mechanism of acculturation needs to be addressed in a more systematic manner and in greater detail. As demonstrated in the findings, more acculturated Chinese Americans tend to experience more stress at work or in personal arenas, and they are characterized with lower personality negativity than those that are less acculturated. The reason could be that more acculturated Chinese Americans tend to assume jobs outside the ethnic enclave and are more likely to have a high-stress career where personal and social resources are not as immediately available to help cope with the stress. It is also possible that more acculturated Chinese Americans tend to experience higher dissonance and more conflicts between their cultural identity (mainstream American) and ethnic identity (Chinese American). To resolve the intrapsychic role conflict and battle against the cultural stereotypes by which they are perceived, the more acculturated Chinese Americans may have to exert more effort to deal with these matters and, thus, experience more stress. Future research is needed to explore these possible psychological mechanisms in the acculturation process, and empirically examine these intriguing hypotheses regarding acculturation and mental health.

Furthermore, another reasonable next step is to attend to the subgroup differences in acculturation and mental health. It is plausible that subgroups, such as adolescents and adults, or the U.S. born and non-U.S. born, may differ in terms of their experiences in achieving adaptation to the mainstream culture. Along the same line of inquiry, gender differences in the processes of acculturation and mental health also deserve closer scrutiny. As seen in the post hoc gender analysis, the relationships between SES, social support, and personality characteristics appeared stronger among women than those among men.

The sources of these gender differences are not clear. It is speculated that compared to women with limited education and income, Chinese American women with higher SES may enjoy higher levels and better quality of social support from more diverse sources. Conversely, women with lower education and income may be more restricted in seeking and receiving support. Alternatively, this relationship between SES and social support is much weaker among men. It could be that men from diverse socioeconomic backgrounds may receive varying degrees of support from different sources; that is, social status neither greatly enhances nor severely curtails their support system. Therefore, SES does not predict perceived support for men as well as it does for women. Furthermore, the stronger association between SES and personality negativity in women may reflect that women with stronger

characters (i.e., lower personality negativity) tend to achieve higher education and economic prosperity. However, this trend is weaker in men probably because men are socialized to pursue educational and economic achievements regardless of their personality propensities. Future studies aiming at unraveling the origins of these differences will undoubtedly advance our knowledge of how gender roles shape personal experiences and lead to different patterns of acculturative processes and mental health functioning for men and women.

     In conclusion, significant contributions, with both theoretical and practical implications, will be made if more well-designed empirical research addressing the issue of immigrants' acculturation and mental health is launched. Previous empirical research seemed insufficient to capture the dynamics and mediational effects of the variables that underlie acculturation and its mental health consequences. Although not without its limitations, this study represents an effort to investigate the mechanism in which acculturation takes multiple pathways to exert influence on the mental health status among Chinese Americans/immigrants. Although this study was conducted on a particular ethnic group, hopefully, it may also shed some light on the common experiences shared by all the immigrants and minority groups who are struggling to achieve integration of their identities with the mainstream society.

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