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The phenomenon of somatization among community Chinese Americans

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Abstract *Objective* The phenomenon of somatization was explored in relation to the experiences of acculturation, stress, support, and distress. *Methods* A representative community sample of 1,747 Chinese Americans (aged 18–65 years), selected by a multi-stage household sampling design, in the Los Angeles County was interviewed to tap their psychiatric diagnoses, symptomatology, level of acculturation, stress, and support. *Results* Across all indices, Chinese Americans' level of somatic symptoms, impairment related to somatization, and percentage of meeting the Somatic Symptom Index 5/5 (SSI 5/5) criterion were comparable to those found in other populations. Length of residence in the U. S. and acculturation were not related to somatization. Regression analyses showed that anxiety, depression, gender, age, education, stressors, and support were significantly related to somatization, $ps < 0.05$. Somatizers tended to perceive themselves with poor health and utilized both Western and indigenous Chinese medicine. *Conclusion* The importance of demographics, psychological distress, and stress was emphasized in the explanation of somatization tendencies among immigrant Chinese Americans. Somatization might be a stress response with regard to increased distress severity and psychosocial stressors rather than a cultural response to express psychological problems in somatic terms.

Key words somatization – anxiety – depression – service use – acculturation – Chinese American

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Introduction

Psychologists and other social science researchers have discussed the influence of culture on mental health symptomatology in the past decades. Among the discussion is the assertion that individuals have varying tendencies to somatize their mental conditions based on the cultural values to which they were inculcated. Somatization is defined as “the substitution of somatic preoccupation for dysphoric affect in the form of complaints of physical symptoms and even illness” [1, p. 149]. The phenomenon of somatization occurs in both nonclinical and clinical settings, and its frequency and intensity vary across ethnic groups [2]. Among different ethnocultural groups, Asians, in particular Chinese, were contended to have a greater likelihood to present their psychological problems as physical complaints [3–5].

Researchers have attributed this phenomenon of somatization among Chinese to their cultural values, language/semantic structure, and their conception of health [1, 6–10]. They argued that Chinese culture encourages the suppression of emotions to preserve harmony in social interactions. Other researchers theorized that Chinese lack the vocabulary to express their emotions in psychological terms; therefore, they rely on physical metaphors to describe their affect. Lastly, some believed that Chinese somatize their affective states because they espouse the holistic conception of the mind and the body and do not differentiate the functions between systems. These explanations implied that acculturation can moderate Chinese Americans' somatization tendencies as they increasingly learn and adopt illness behaviors from the mainstream American culture.

Despite researchers' assertion of such cross-cultural differences in somatization, empirical evidence is still insufficient and inconclusive. Although studies have found that Chinese and Asian Americans reported more somatic symptoms in clinical settings [1, 2, 11–13], other

studies found either no difference in the report of somatic symptoms among all ethnic groups seen in general practice or that the reporting of somatic symptoms was very common among nonclinical populations [2, 14–16]. In a community sample of Chinese in Hong Kong, the respondents reported more psychological symptoms than both psychophysiological and physiological symptoms [7]. In another study, Chinese psychiatric patients were found to be able to acknowledge their affective states when they were directly asked [17]. They also were found to report different symptoms according to the settings in which they sought help [18]. Therefore, it was argued that instead of replacing their psychological distress with somatic symptoms, Chinese are reporting different types of symptoms depending on the situation and their routes of help-seeking.

In addition to the alternative hypotheses that were proposed to account for their reporting of somatic symptoms, somatization was found to be strongly related to both depression and anxiety disorders [12, 14, 15, 19, 20]. Since most studies have not controlled for the severity of psychological distress in the examination of somatization, the reporting of more somatic symptoms by clinical samples might reflect their more severe state of psychological distress. Furthermore, women, older individuals, and individuals of lower socioeconomic status were found to report a greater number of somatic symptoms [14, 21–23]. Thus, these sociodemographic indicators must be accounted for in the relationship between culture and somatization.

Somatization tendencies also were related to help-seeking patterns, stress experiences, and the availability of social resources [24]. This issue is particularly salient among immigrant populations, whose experiences were often compounded by their access to health care, their level of stress and social support they experienced and received in the host society. Given the gaps in the literature on somatization, the experience of somatization might be a result of severe psychological distress, excessive life strain, and a lack of social support in coping with stress among individuals with various sociodemographic characteristics. Thus, the argument that Chinese Americans translate their psychological distress into somatic symptoms might oversimplify the phenomenon of somatization observed in this ethnic group.

In addition to the cultural issues surrounding somatization, its diagnostic classification has been an active topic of discussion. Although the manifestation of somatic symptoms was common across settings, the prevalence of somatization disorder was very low across cultures (below 1%) according to the diagnostic criteria of somatization disorder of the DSM [22, 25–27]. To more sensitively identify individuals in the community who may be at risk for somatization disorder, other psychiatric disorders, and increased health care utilization, Escobar et al. [28] have developed the abridged SSI. The SSI has a cut-off of four somatic symptoms for males and six somatic symptoms for females based on DSM-III-R. Different thresholds were used between the two

genders because the Diagnostic Interview Schedule (DIS) contained a number of symptoms that are specific for women. This criterion has shown good discriminant validity between mild and severe forms of somatization and practical utility in the prediction of psychopathology and use of medical services [28–30]. In the adoption of SSI to gender-balanced somatization scales, later studies have used a criterion of five somatic symptoms for both genders (refer to as SSI 5/5) [23, 28]. This balanced criterion was used in the present study.

Given the complexity of this phenomenon and the limitations of past studies, the present study examined the prevalence and sociodemographic correlates of somatic symptoms and clarified the relationship between somatization, psychological distress (depression and anxiety), demographics (gender, age, educational level, household income, acculturation), stress (lifetime events, recent negative events, daily hassles, and chronic financial strain), and social relations (family and friend support and demand) among a community sample of Chinese Americans. The study also explored the relationships between somatization, health perceptions, as well as the utilization of Western and indigenous Chinese medicine.

Subjects and methods

■ Sampling

A community sample of Chinese Americans aged 18–65 years was selected by a multi-stage household sampling design between April 1993 and August 1994 in the 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. If the index member refused, the person with the next most recent birthday was invited for participation until all members within the household refused to participate. Weights that adjust for household size and non-response rates were applied. Respondents were interviewed in English (21.5%), Mandarin (67.4%), or Cantonese (11.1%) according to their language preferences. Further description of sampling method and data collection procedures was reported in Takeuchi et al. [31]. The study screened a total of 16,919 households for eligible respondents to obtain the final sample of 1,747 completed interviews. The response rate based on the total number of completed interviews proportion to the total number of eligible households was 82%. The average length of the interview was 90.62 min ($SD = 32.62$).

Among the 1,747 Chinese Americans sampled, 52.2% were female. The average age was 38.40 years, $SD = 11.88$, and the majority of the subjects had at least some college education (58.8%), a household income of \$24,999 or less (53.1%), and were married (66%). The sample was predominantly foreign-born (95.1%), with an average length of residence of 12.03 years, $SD = 9.18$. The majority of the respondents reported speaking various Chinese dialects in their household (e.g., 34.7% Cantonese, 32.5% Mandarin, 4.2% other Chinese dialects), with 8.2% speaking English, 10.1% speaking both Chinese and English, and 10.2% speaking other languages.

■ Measures

Demographics

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 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 last year. Length of residence in the United States was measured by the number of years respondents have lived in this country.

Acculturation

The acculturation scale was based on the Acculturation Rating Scale for Mexican Americans [32, 33] and the Behavioral Acculturation Scale [34]. Eight self-referenced items, covering language usage, ethnic social affiliation, and involvement in cultural activities were used to compute the acculturation score. The items were rated in a 5-point Likert scale, with higher values indicating greater acculturation to the American culture. The scale had high internal consistency (Cronbach's alpha of 0.83). It was correlated with number of years living in the U.S. ($r=0.45$), language use in the household ($r=0.30$), and ethnic self-identification ($r=0.27$), $ps < 0.001$.

Somatization

Somatization was indexed in several ways based on the subscale of the Symptom Checklist-90 Revised (SCL-90R) [35, 36]. Respondents rated the extent to which 12 symptoms bothered them in the past week from [1] *not at all* to [5] *extremely*. The somatization subscale achieved a reliability coefficient of 0.82 for the present sample of Chinese Americans. In this study, positive symptom count, mean score of impairment, and the Somatic Symptom Index (SSI) were used. The gender-balanced cut-off of five endorsed symptoms for both males and females was used for the SSI.

Depression

Depression subscale of the SCL-90R [35, 36] was used to evaluate respondents' self-reported degree of depression. Respondents rated the extent to which 13 depressive symptoms bothered them in the past week from [1] *not at all* to [5] *extremely*. The depression subscale demonstrated a good internal consistency for the present Chinese American sample (Cronbach's alpha = 0.87). In addition to the mean impairment score from the SCL-90R, lifetime diagnoses of depressive disorders based on the DSM-III-R were derived using the University of Michigan version of the Composite International Diagnostic Interview (UM-CIDI) [37]. The instrument has demonstrated high reliability and validity for most diagnoses for various Chinese samples [38, 39]. Individuals who had a diagnosis of any depressive disorders (i.e., major depression, dysthymia, depressive disorder NOS) in their lifetime were coded as [1] versus those who did not have any diagnosis of depressive disorders [0].

Anxiety

The 10-item anxiety subscale of the SCL-90R [35, 36] was used to evaluate respondents' self-reported degree of anxiety. Respondents rated the extent to which each symptom bothered them in the past week from [1] *not at all* to [5] *extremely*. The subscale achieved a good internal consistency (Cronbach's alpha = 0.84 for anxiety). Using lifetime diagnoses of anxiety disorders based on the UM-CIDI, a dichotomous variable was created for individuals who had a diagnosis of any anxiety disorder (i.e., agoraphobia, generalized anxiety disorder, PTSD, panic disorder, simple phobia, social phobia) in their lifetime [1] versus those who did not have any diagnosis of anxiety disorders [0].

Stress

Four measures were used to more completely account for the effects of stress on somatic symptoms.

- Lifetime events assessed ten major events that occurred during the lifetime of the respondents. The measure was adopted from the UM-CIDI. Lifetime events included combat experience, life-threatening accident, natural disaster, witness of injury/death, rape, sexual molestation, physical attack, abuse, neglect, and threat. The lifetime events experienced by the respondent were summed together to obtain a total score for this measure.
- Recent negative events assessed ten negative events that occurred within the past 12 months. The measure was also used in the UM-CIDI, which was based on the Schedule of Recent Life Events and the Social Readjustment Rating Questionnaire [37, 40]. 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 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 [41, 42].
- Daily hassles was measured using a modified version of the Daily Hassles Scale [43], which assessed 16 areas of everyday strains, including interpersonal conflicts, living pressures, and nuisance typical of urban living. The present study used the score based on the total number of daily hassles experienced in the past month.
- The fourth indicator of stress measured financial strain. Financial strain was assessed by eight questions adopted from the Social Readjustment Rating Questionnaire [40] that included such financial concerns as insufficient money for housing, debts and credits, money for emergencies, inflation and daily costs of living, financial responsibility for others, and financial security. The score was based on the sum of financial strain experienced by the respondents in the past month.

Social relation

Five types of social relation were included in the analysis. The questions used were adopted from the UM-CIDI's measure of perceived affective support [37], which was derived from the Provisions of Social Relations Scale [44]. The present study used six questions to assess perceived satisfaction about the emotional support received from family members and friends. The respondents rated their responses from *not at all* [1] to *a lot* [4]. The two clusters of questions were found to be internally consistent in this sample (Cronbach's alpha of 0.88 for family support and 0.90 for friend support).

In addition to positive social relationships, social demand was included. Six questions from the UM-CIDI measured the extent to which the respondents experienced emotional strain and conflict with family members and friends. Respondents were asked to rate their responses from *not at all* [1] to *a lot* [4]. The internal reliabilities for the social demand measures were high (Cronbach's alpha of 0.84 for family demand, 0.78 for friend demand).

Finally, instrumental support was measured by six questions adopted from the UM-CIDI's measure of perceived support. The questions assessed the extent respondents believed their friends would provide instrumental assistance to them on a 5-point Likert scale from *very unlikely* [1] to *very likely* [5]. Items included looking after your possessions while you are away, lending money or tools to you, and providing transportation and temporary shelter. The measure achieved high internal consistency (Cronbach's alpha = 0.91).

Perceived health

Respondents were asked to rate their overall physical health on a 5-point scale from [1] *poor* to [5] *excellent* as well as to compare their health with their age peers as *better*, *about the same*, or *worse*.

Service use

Respondents were asked about their health care practices by indicating their use of either Western medicine/doctor, traditional Chinese medicine/doctor, or both. They also rated their frequency of using Western and traditional Chinese medicine in a 5-point scale from [1] *never* to [5] *very often*. In terms of help for mental health problems, respondents were asked to indicate if they have ever visited: (a) a psy-

chiatrist or mental health specialist at a health plan, (b) a psychiatrist or mental health specialist in private practice, and (c) any other medical doctor.

Results

■ Prevalence of somatization

The sample of Chinese Americans reported a mean of 1.82 somatic symptoms ($SD = 2.33$). As to the extent of impairment due to somatic symptoms, the sample had a mean of 0.21 ($SD = 0.32$) in their SCL-90R somatization score. This score is slightly lower than their depression score ($M = 0.26, SD = 0.38$), but higher than their anxiety score ($M = 0.14, SD = 0.28$). Even though the mean number of somatic symptoms and its level of impairment was low, 57.2% ($N = 999$) of the sample reported experiencing at least one of the 12 somatic symptoms in the past week. Furthermore, 12.9% ($N = 225$) of the sample met the SSI 5/5 criterion.

■ Somatization by demographic characteristics

The phenomenon of somatization was associated with certain demographic characteristics of Chinese Americans. Somatization, as assessed by the degree of impairment and symptom count, was related to gender, age, and education. Across all indices, women had a significantly higher mean somatization score, higher mean number of somatic symptoms, and greater percentage meeting the SSI 5/5 criterion than men. The experience of somatization was more prevalent among individuals over 41 years old and those with less than college education. These individuals had higher mean impairment score, mean number of somatic symptoms, and a higher percentage meeting the SSI criterion. Length of residence in the United States and acculturation level did not significantly affect somatization. Nevertheless, these demographic relationships were also observed with depression and anxiety. Women and less-educated individuals were significantly more likely to obtain either higher SCL depression and anxiety impairment scores or the diagnoses of any depressive and anxiety disorders. Although no age differences were found in the depression and anxiety impairment scores, older individuals were significantly more likely to be diagnosed with depression and anxiety disorders. Table 1 summarizes the statistics on somatization, depression, and anxiety by demographic variables.

■ Frequency of somatic symptoms

The ranking of somatic symptoms by gender is listed in Table 2. Similar ranking of somatic symptoms was found in both genders. Both women and men reported the experience of headaches, muscle soreness, and lower back

Table 1 Somatization, depression, and anxiety by demographic variables

Demographic characteristic	SCL-90R somatization score		Number of somatic symptoms		SSI 5/5 criterion		SCL-90R depression score		Depression diagnoses		SCL-90R anxiety score		Anxiety diagnoses		
	N	M	SD	M	SD	N	%	M	SD	N	%	M	SD	N	%
Gender	865	0.25***	0.35	2.09***	2.50	138	16.0***	0.30*	0.41	78	9	0.16**	0.31	63	7.3*
Female	882	0.19	0.31	1.55	2.12	87	9.9	0.23	0.36	80	9.1	0.12	0.27	41	4.7
Male	1,050	0.18	0.28	1.57	2.05	97	9.2	0.24	0.34	67	6.4	0.12	0.24	51	4.9
Age	696	0.27***	0.39	2.20***	2.67	128	18.4***	0.30	0.44	92	13.2***	0.16	0.34	53	7.6*
18–40 years old	720	0.27***	0.40	2.13***	2.65	123	17.1***	0.31**	0.45	85	11.8***	0.16*	0.35	57	7.9**
41–65 years old	1,026	0.18	0.26	1.61	2.06	102	9.9	0.23	0.33	74	7.2	0.12	0.24	47	4.6
Education	913	0.23	0.34	1.91	2.38	129	14.1	0.27	0.39	85	9.3	0.14	0.30	53	5.8
Up to high school	833	0.20	0.32	1.73	2.28	97	11.6	0.26	0.38	73	8.8	0.14	0.27	51	6.1
College or above	865	0.24	0.36	1.91	2.48	129	14.9**	0.26	0.40	86	9.9	0.13	0.29	58	6.7
Length in the U. S.	881	0.20	0.29	1.73	2.16	95	10.8	0.26	0.37	72	8.2	0.15	0.28	46	5.2
Up to 10 years	1,747	0.22	0.33	1.82	2.33	236	13.5	0.26	0.38	158	9.1	0.14	0.29	104	6.0
Over 10 years															
Acculturation															
Mostly/only Chinese															
Bicultural/mostly/only American															
Total															

Sample size may not add up to 1,747 due to missing values; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2 Frequency and ranking of somatic items by gender

Somatic item	Female		Male	
	%	Rank	%	Rank
Headaches	37.2***	1	23.8	2
Faintness/dizziness	23.5***	4	11.9	6
Heart/chest pains	8.5	10	6.3	10
Lower back pains	27.4*	3	22.9	3
Nausea/upset stomach	10.8	8	8.0	8
Muscle soreness	32.3*	2	26.8	1
Shortness of breath	5.9	12	5.3	11
Hot/cold spells	6.7**	11	3.5	12
Body numbness/tingling	12.8	7	12.4	5
Lump in throat	9.4*	9	6.8	9
Body feeling weak	20.7*	5	17.0	4
Arms/legs feeling heavy	14.3*	6	10.7	7

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

pains most frequently while they reported having heart/chest pains, shortness of breath, and hot/cold spells least frequently. Eight of the 12 symptoms were reported significantly more frequently by women than men, with the greatest differences found in headaches (37.2% of women vs. 23.8% of men) and faintness/dizziness (23.5% of women vs. 11.9% of men), p s < 0.001 .

■ Somatization with anxiety and depression

Somatization score was moderately correlated with anxiety ($r=0.41$) and depression ($r=0.42$) scores of the SCL-90R, p s < 0.001 . Among those individuals with any depressive diagnosis ($N=158$), 41.9% met the SSI 5/5 criterion for somatization. Similarly, 42.4% of those individuals with at least one anxiety disorder ($N=104$) met the SSI 5/5 cut-off. Conversely, 29.5% and 19.6% of individuals who met the SSI 5/5 criterion also met the criteria for depressive disorders or anxiety disorders, respectively.

■ Somatization on perceived health and service use

Compared to individuals who did not meet the SSI 5/5 criterion for somatization, a significantly higher percentage of somatizers rated their health as poor (18.8% vs. 2.0%) or fair (37.5% vs. 12.8%) rather than good (18.8% vs. 27.6%), very good (22.3% vs. 43.6%), or excellent (2.7% vs. 14%), $\chi^2 = 255.17$, $df=4$, $p < 0.0001$. When asked to compare their overall health with their same-age peers, significantly more somatizers than non-somatizers perceived their health to be worse (44% vs. 74%), rather than about the same (42.7% vs. 64.6%) or better (13.3% vs. 28%) than their peers, $\chi^2 = 248.13$, $df=2$, $p < 0.0001$.

Although there was no difference in insurance coverage (60.7% of the respondents had medical insurance)

and the majority of the respondents utilized Western medicine for health care, more somatizers than non-somatizers reported seeking help from both Western and traditional Chinese doctors (36.3% vs. 23.6%) rather than either type of doctors (56.5% vs. 68.2% for Western doctor; 7.2% vs. 8.3% for traditional Chinese doctor), $\chi^2 = 16.81$, $df=2$, $p < 0.01$, and using both Western and traditional Chinese medicine (39.1% vs. 26.5%) rather than either type of medicine (54.7% vs. 66.2% for Western medicine; 6.2% vs. 7.3% for traditional Chinese medicine), $\chi^2 = 15.47$, $df=2$, $p < 0.01$. In addition, a significantly higher percentage of somatizers reported seeking help from a psychiatrist or other mental health specialist at a health plan (8.0% vs. 3.9%, $\chi^2 = 7.91$, $df=1$, $p < 0.01$), a psychiatrist or other mental health specialist in private practice (5.8% vs. 2.5%, $\chi^2 = 7.45$, $df=1$, $p < 0.05$), and any other medical doctor (6.7% vs. 2.8%, $\chi^2 = 9.11$, $df=1$, $p < 0.01$) for problems with their mental health than non-somatizers. These findings demonstrated that not only were somatizers perceiving themselves as having poorer health and were displaying more somatic symptoms, they also recognized their mental health problems and were actively seeking help for them at a higher rate than their non-somatizing counterparts.

■ Sociodemographic and cultural predictors of somatization

To examine the relationships between somatization with psychological distress, demographic factors, stress, and social relations, two regression analyses were conducted. In the first model, relationships with somatization score of the SCL-90R were tested and the results are presented in Table 3. Overall, the model significantly predicted somatization score, $F(16, 1,628) = 35.94$, $p < 0.001$. The variables together explained over 25% of the variance in somatization (adjusted $R^2 = 0.25$). Depression and anxiety as assessed by the SCL-90R were the strongest predictors of somatization. Individuals who are female, older, or less educated reported being more bothered by somatic symptoms than their counterparts. Whereas life events and financial strain exacerbated the somatization experience, instrumental support from friends ameliorated the negative effects of somatic symptoms.

In the second model (see Table 3), the likelihood of meeting the SSI 5/5 criterion was examined using logistic regression analysis. Instead of using the SCL-90R impairment scores of anxiety and depression, diagnoses of anxiety and depression were used to determine how DSM diagnostic classification of distress is related to the abridged SSI criterion. Individuals with depressive diagnoses or anxiety diagnoses respectively were 4.05 and 2.20 times more likely to meet the SSI cut-off than those without any depressive and anxiety diagnoses. Women were 1.32 times more likely to meet the SSI 5/5 criterion than their male counterparts. Older adults were 1.33 times more likely to be identified as somatizers than

Table 3 Summary of regression analyses on somatization

Variable	SCL-90R somatization score		SSI 5/5 criterion	
	β	t	Exp(B)	Wald
SCL-90R depression/any depressive diagnosis	0.17	4.60***	4.05	34.38***
SCL-90R anxiety/any anxiety diagnosis	0.18	5.04***	2.20	7.98**
Female	0.7	3.00**	1.32	9.36**
Age	0.7	2.94**	1.33	8.73**
Education	-0.12	-4.82***	0.77	8.61**
Household income	0.2	0.77	0.97	0.11
Acculturation	0.1	0.34	0.99	0.01
Lifetime events	0.7	3.13**	1.03	0.9
Recent events	0.0	0.11	1.11	1.65
Daily hassles	0.4	1.71	1.68	33.64***
Financial strain	0.16	6.47***	1.32	11.53***
Family emotional support	-0.04	-1.43	0.76	9.03**
Friend emotional support	0.3	0.93	1.13	1.38
Family emotional demand	-0.02	-0.58	0.97	0.7
Friend emotional demand	-0.05	-1.71	0.84	2.37
Friend instrumental support	-0.09	-3.07**	0.75	7.70**

Model for SCL-90R somatization: $R^2 = 0.26^{***}$, adjusted $R^2 = 0.25^{***}$

Model for SSI 5/5: Chi-square ($df = 16$) = 246.64***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

their younger counterparts. Moreover, individuals who were less educated were 23% more likely to experience somatization. As to the relationships among stress and somatization, everyday, chronic stressors seem to have a more significant effect on individuals than acute, life events. Individuals with daily hassles and financial strain were 1.68 and 1.32 times more likely to meet the somatization threshold than those experiencing less stressors, respectively. Both life events and recent events were not significantly related to SSI 5/5. On the other hand, individuals who received emotional support from family or instrumental support from friends were about 25% less likely to have somatization than those lacking these kinds of support.

Discussion

The present study expanded upon previous studies on somatization by exploring this phenomenon among a predominantly immigrant community sample of Chinese Americans. Findings indicated that although somatization is an actual clinical phenomenon among Chinese Americans, its relationship with culture is not as straightforward as previous studies have suggested. The present study assessed somatization in three different ways to better capture this experience. Somatization, as measured by the number of somatic symptoms, the level of impairment, and the SSI 5/5, was significantly influenced by individuals' level of depression and anxiety, gender, age, education, stress, and instrumental support. It must be noted that because the present study could not distinguish psychosomatic symptoms from medically explained symptoms, symptom count and age differences in somatization might be overestimated. More-

over, acculturation, as measured by self-report acculturation scale and number of years living in the United States, was not related to somatization. The demographic differences observed were not specific to somatization. Similar gender, age, and educational differences in depression and anxiety were found. Thus, just as the development of depression and anxiety, the expression of somatization among Chinese Americans might be a stress response with regard to increased distress severity and psychosocial stressors rather than a cultural response to express psychological problems in somatic terms.

The prevalence of somatization for the current sample of Chinese Americans (12.9%), as indicated by the SSI 5/5, was comparable to a community group of Russian immigrants in Israel (14.9%) [23], based on the Symptom Checklist and the Brief Symptom Inventory, respectively. The current finding also showed that depression and anxiety are the strongest predictors of somatization. This finding corroborated with previous findings in the NIMH Epidemiologic Catchment Area Study, which found major depression ($r = 0.35$) and anxiety disorder ($r = 0.34$) as having the strongest relationships with somatization, compared to other major mental disorders [20]. In a study of primary care patients in 14 participating countries, somatic symptom was also correlated with anxiety ($r = 0.40$) and depression ($r = 0.33$) at similar magnitude [45]. A high proportion of Chinese Americans in the current sample with depressive or anxiety diagnoses also met the SSI 5/5 criterion. This finding was similar to Katon et al. [46], who found 45.2% of those who met the SSI criterion for somatization have had a diagnosis of major depression in their lifetime. Thus, rather than replacing the expression of depression and anxiety, individuals reporting somatic

symptoms also tended to experience psychological distress. Supported by numerous studies that somatization is a common clinical phenomenon among community and patient populations across cultures [2, 14, 16, 21, 25, 45, 48–50], it is reasonable to conclude that individuals are not masking their psychological distress somatically. Quite the contrary, individuals with a strong tendency of somatization are aware of and are willing to disclose their affective distress. They have a heightened awareness of their internal (physical and psychological) states, which prompt them to more readily seek professional help than their non-somatizing counterparts.

Similar to previous findings on somatization among culturally diverse individuals, the strong relationships between somatization, anxiety, and depression were supportive of the somatosensory amplification model, based on which distress is associated with a generalized increase in symptom sensitivity [20, 45]. Individuals with an amplified somatosensory system express their distress through both physical and psychological symptoms. Thus, both types of symptoms are legitimate expression of their distress, which may be exacerbated by the experience of financial and psychosocial stress and the dearth of social resources and support. The current study precludes the examination of possible causal relationships among these three forms of distress types. Just as severe anxiety and depression can intensify the experience of somatic sensations, physical discomfort can lead to the development of psychosocial maladjustment and distress.

In regard to the cultural hypotheses on somatization, the strong relations between somatization with depression and anxiety as well as the patterns of service use indicated by somatizers showed that not only were somatizers aware of their mental states and were reporting psychological symptoms, they were also more actively seeking service to deal with their mental health problems. Thus, the cultural assertion that Chinese tended to suppress their affective states and lacked the semantics to express their affect in psychological terms were not substantiated by the study's findings. The present sample of Chinese Americans could readily report both psychological and somatic symptoms. Furthermore, somatizers tended to use both Western and traditional Chinese medicine and to utilize more psychological services than non-somatizers. These findings suggest that immigrant Chinese Americans indeed may have a higher likelihood to adopt a holistic view of their mind and body, which facilitates them to become more aware of their internal states and to use a wide variety of means to manage them. Given the possibility of their heightened somatosensory response or their holistic conception of health, individuals who present their distress in both somatic and psychological symptoms may have more grounds to perceive themselves to have poorer health than their same-age peers. Thus, given that both somatic and psychological symptoms are such integral parts of their distress experience, the demarcation of mental and physical distress does not facilitate the treat-

ment of distress for this immigrant Chinese American population.

Despite the comprehensiveness in the coverage of related factors (i. e., depression, anxiety, demographics, acculturation, stress, support) with somatization, several limitations are noted here for consideration. Although three indices of somatization were used in the current study (number of positive somatic symptoms, extent of impairment due to somatic symptoms, and the Somatic Symptom Index 5/5 criterion), they were derived from the same self-report questionnaire, the Symptom Checklist-90 Revised (SCL-90R). Thus, a possible reason for similar findings across indices may be an artifact of the self-report nature and the inherent associations among these indices. Besides using the Symptom Checklist or other self-report inventories to derive somatization, researchers in previous studies often used the somatization symptoms and criteria in the Diagnostic Interview Schedule (DIS) or the Composite International Diagnostic Interview (CIDI). The differences in means to construct somatization are that DIS/CIDI are based on lifetime prevalence of somatization symptoms rather than current symptoms and they include a wider array of symptoms that include medically explained symptoms and gender-specific symptoms. Whereas DIS/CIDI allow researchers to develop a fuller picture of the somatization phenomenon, self-report questionnaires serve as a useful and convenient tool to screen somatization tendencies. Future studies need to corroborate self-report data with other sources such as primary care to minimize the reliance on self-report questionnaires, to identify medically explained somatic symptoms, and to enrich clinicians' and researchers' understanding of the somatization phenomenon.

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