Living Alone and Depression Among Older Chinese Immigrants

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ABSTRACT. This study examined the profiles of 147 Chinese elderly immigrants by living arrangement and the role that stress and coping resources played in explaining depressive symptoms in the volunter sample group who were recruited at senior centers and meal sites. Elderly Chinese Americans who lived alone, had higher levels of education, reported poorer health, experienced more stressful life events, and were dissatisfied with help received from family members were more likely to be depressed. The impact of these factors on the quality of life of elderly Chinese immigrants can be understood within the Chinese cultural context and the implications of these findings for service providers are discussed. *[Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: getinfo@haworthpressinc.com]*

KEYWORDS. Chinese, immigrant, living alone, depression, elderly

Approximately 8.9 million elderly Americans, nearly one-third of all older Americans, live alone (U.S. Senate Special Committee on Aging, 1991). Previous studies suggest that older adults' living arrangements may be a function of the degree of support they need from their immediate environment. Those living alone are, thus, a relatively robust population in terms of physical and functional health. For example, in the 1982 National Long-Term Care Survey, 34.4% of elders who were living alone in the community had no impairment in activities of daily living and another 44.5% had only one or

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two such deficits (Burnette & Mui, 1996). Kovar (National Center for Health Statistics, 1986) also found that elders living alone were less impaired than counterparts who lived with someone, especially at advanced ages.

Studies indicate that the potentially salutary effects of independent living may be compromised by a range of social, emotional, and environmental stressors (Mui, 1996; National Center for Health Statistics, 1986; 1988). For example, Mui and Burnette (1994) found that despite fewer physical, cognitive, and functional impairments, frail elders living alone in the National Long-Term Care Channeling Demonstration Project had significantly higher rates of psychological distress, including depression, than did study participants with co-residents. Dean, Kolody, Wood, and Matt (1992) reported that although living alone is unlikely to lead to depression in and of itself, it does contribute independently and in combination with other social and psychological variables to increased depressive symptomatology. Although quite a few studies have examined the relationship between living arrangements and quality of life among elderly people, none of the previous research has studied the Asian immigrant population. Due to the increasing number of such immigrants in the U.S., it is crucial to understand their needs and quality of life issues among them.

Between 1980 and 1990, the Asian American population in the U.S. increased by 107% (from 3,500,439 to 7,273,662), compared with 6% for whites, 13% for blacks, and 53% for Hispanics (U.S. Bureau of Census, 1991). The Asian American population is composed of more than two dozen ethnic groups from Asia and the Pacific Islands, including Chinese, Koreans, Filipinos, Japanese, Thais, Hmong, and Laotians. For Chinese Americans and immigrants, specifically, the growth rate was about 104% (from 806,040 to 1,645,472). Data from the 1990 census also show that one-third of the Asian American elderly are Chinese and over 85% of these older Chinese were foreign-born (U.S. Bureau of Census, 1991).

Although there are an increasing number of Asian and other ethnic minorities and immigrants in the population, there are substantial knowledge gaps regarding the state of ethnic minorities in America, especially the elderly population, as the result of a lack of empirical research (LaVeist, 1995). Researchers with the Gerontological Society of America's Minority Task Force noted that numerous medical, psychological, social, and biological research questions remain unanswered because there are little data for this population (Gibson, 1989; Jackson, 1989; Mui, 1996a, 1996b). In this study, the author has attempted to fill this gap by conducting an empirical study to understand the relationship between living arrangements and depression among elderly Chinese immigrants in a major U.S. metropolitan region.

LIVING ALONE AND MENTAL HEALTH STATUS AMONG OLDER PEOPLE

In the U.S., epidemiological studies have examined the prevalence of depressive symptoms in communities using a variety of self-rating scales and interviews. Depending on the selected cutoff points and instruments, the reported prevalence of depression among those over the age of 65 living in the community ranged from 2-5% for major depressive disorders to as high as 44-50% for depressive symptoms (Blazer et al., 1988). Ross and Mirowsky (1989) identified associations between three major social patterns and depression in the general population that are especially relevant to the psychological well-being of older people who live alone: (1) persons of lower socioeconomic status experience higher levels of depression; (2) unmarried persons have higher levels of depression than married persons; and (3) women have higher levels of depression than men. With regard to socioeconomic status, five times the number of older women as older men who live alone have incomes below the federal poverty threshold. Furthermore, by 2020, poor older women who live alone are expected to outnumber similarly situated men by a factor of 10 (U.S. Senate Special Committee on Aging, 1991). These data, as well as the well-documented inverse correlation between socioeconomic status and likelihood of experiencing and being more adversely affected by stressful events (Burnette & Mui, 1996; Mui, 1996b) may also apply to ethnic minority people who live alone.

Numerous studies of the older population (see Table 1) support Ross and Mirowski's (1989) finding of higher levels of depression among older women. In addition, elderly people who live alone reported significantly higher levels of depression than did older persons living with others, even controlling for other differences (Burnette & Mui, 1996; Dean et al., 1992; McCallum & Shadbolt, 1989). However, Mui and Burnette (1994) found no significant gender differences in distress levels of frail elders who lived alone in the Channeling Demonstration Project data.

Furthermore, of all the psychological problems that affect elderly people, depression is the risk factor most frequently associated with suicide (Lapierre, Pronovost, Dube, & Delisle, 1992). One-fifth of all late-life suicides are due to depression (APA, 1988). There is evidence to show that Chinese Americans have a higher rate of death due to suicide than do whites (Yu, 1986). Compared to other groups, the suicide rate for older Chinese women was much higher than for their male counterparts. The death rate by suicide for elderly Chinese immigrants was almost six times higher than the rate for U.S.-born older Chinese Americans (Yu, 1986). Because suicide attempts and suicides are considered manifestations of mental disorder and because suicide is more likely among people who are depressed, the mental health status

TABLE 1. Available Studies of Factors Associated with Depression in Community-Dwelling Elderly Persons

Authors	Sample	Depression Measure	Multivariate	Significant Correlates of Depression
Burnette & Mui, 1996	n = 1,650, older Hispanic women	Bradburn's Affect Balance Scale (Bradburn, 1969)	Yes	Living alone, poor health, financial strain, more unmet service needs, family conflict.
Dean et al., 1992	n = 848, White elders	CES-D (Radloff, 1977)	Yes	Being women, more impaired, more undesirable life events, financial strain, living alone, not able to see friends, no friend support.
Dunkle, 1983	n = 647, Black and White elders	Zung Self-Rating Depression Scale (Zung, 1972)	Yes	Older, poor self-rated health, less economic contribution, perception of caregiving behavior.
Husainin et al., 1991	n = 600, Black elders	CES-D (Radloff, 1977)	Yes	Medical problems, poor ego, no friends, fewer social supports.
Krause, 1986	n = 351, Black and White elders	CES-D (Radloff, 1977)	Yes	Low integration
Krause & Goldenhar, 1992	n = 2,299, Hispanic elders	Bradburn's Affect Balance Scale (Bradburn, 1969)	Yes	Being older, being women, being Cuban, financial strain.
Krause & Liang, 1993	n = 2,721, Chinese elders	CES-D (Radloff, 1977)	Yes	Being older, being women, financial strain, lack of emotional support, negative interaction.
Linn et al., 1979	n = 283, Black, White, Cuban elders	Hopkin's Symptom Checklist (Derogatis et al., 1974)	No	Poor health and lower social class.
McCallum & Shadbolt, 1989	n = 1,376, Australian elders	4 depressive symptoms: depressed, distress, lonely, bored	Yes	Being women, living alone, lower education, poor self-rated health.
Mui, 1993	n = 1,503, Black and Hispanic elders	8 depressive symptoms	Yes	Common for both groups: poor health, less sense of control in life; for Hispanics: fewer informal helpers, women; for blacks: relocation and less formal help.
Mui, 1996a	n = 2,299, Hispanic elders	Bradburn's Affect Balance Scale (Bradburn, 1969)	Yes	Women, living alone, poor health, fear dependency, more unmet service needs, family conflicts.
Mui, 1996b	n = 50, Chinese elders	Geriatric Depression Scale	Yes	Poor self-rated health, living alone, perceived dissatisfaction with help from help.
Norris & Murrell, 1984	n = 1,402	CES-D (Radloff, 1977)	Yes	Higher Time 1 depression, weaker resources, higher undesirable events, higher global stress.

TABLE 1 (continued)

Authors	Sample	Depression Measure	Multivariate	Significant Correlates of Depression
Palinkas et al., 1990	n = 1,617	Beck Depression Scale (Beck et al., 1961)	Yes	Higher number of medical conditions, lack of social participation, lack of contact with significant others, being older, being women.
Smallegan, 1989	n = 181, Black and White elders	Hopkins Symptom Checklist (Derogatis et al., 1974) Geriatric Depression Scale (Yesavage et al., 1983)	Yes	Higher level of disability, lack of spouse, total number of life events.

of elderly Chinese immigrants deserves careful evaluation and attention so that culturally-appropriate intervention programs can be developed.

Depression may occur frequently in elderly immigrants because they have limited resources, yet must deal with physical frailty and stressful life events (Gelfand & Yee, 1991). Despite substantial prevalence rates, symptoms of depression often go unrecognized, undiagnosed, and untreated due to patient and health care-related barriers and problems in the organization and financing of mental health services for older adults (Gottlieb, 1991). Studies also suggest that Chinese immigrants tend to underutilize mental health services, even though the prevalence and types of reported psychological disorders among them were similar to those in the white population (Loo, Tong, & True, 1989; Snowden & Cheung, 1990). Depressive symptoms do not tend to remit spontaneously in older adults (Allen & Blazer, 1991), and undiagnosed and untreated depression in late life causes tremendous distress for older adults, their families, and society.

Research suggests that older Chinese Americans and older Chinese immigrants are at higher risk of depression than are older whites (Ying, 1988). The most common risk factors for depression–poverty, low educational attainment (Kestrel, 1982; Mui, 1996b; Ross & Huber, 1985), poor physical health (National Institute of Aging, 1990), and high rates of family disruption–are prevalent among ethnic elders, including older Chinese Americans and new immigrants (New York Center for Policy on Aging, 1993). The stresses of immigration and acculturation pose additional risks for situational stress and somatic symptoms, often when family supports are weakened or unavailable (Gelfand & Yee, 1991). However, depressed Chinese elders are less likely than white elders to be identified by social workers and less likely to receive treatment (Chi & Boey, 1993).

Although depression is the most common psychological problem among the elderly of all nationalities, few researchers have studied depression in older Chinese Americans or Chinese immigrants. In addition, the existence of

cultural factors has complicated the accurate assessment of depression in this population. For example, some instruments for measuring depression may not be culturally suited to assess the mental health of Chinese American elderly people. There are some new developments, however, in the methodology of studying the Chinese elderly population. Recently, Chinese researchers in Hong Kong have started to use the Geriatric Depression Scale (GDS) to study the mental health status of their Chinese elderly population. Chiu and his colleagues (1993) have done a cross-cultural validation study to establish the reliability and validity of the 30-item GDS among both normal and depressed Chinese elders in Hong Kong. Mui (1996c) replicated the validation study and developed a Chinese version 15-item GDS that had an alpha reliability coefficient of .89.

Previous research has shown that older persons were more likely to be depressed if the person was female, had poor self-rated health, was living alone, and had poor quality of social support (Burnette & Mui, 1994; Mui, 1993; 1996b). Other researchers have found that greater family/social support was associated with less depression because social support can mediate the impact of stress among elderly people (Husaini et al., 1991; Krause, 1986). Furthermore, it was not the size of the support network but the perceived satisfaction with family help that was associated with less depression (Borden, 1991; Mui, 1992; Wethington & Kessler, 1986).

Recent research suggests that living alone is associated with more depression because it increases the risk of social isolation (Mui, 1993; 1996b). For example, a study using the National Long-Term Care Channeling Demonstration, 1992-1994, database found that despite having fewer physical, cognitive, and functional impairments, elders who lived alone had significantly higher rates of depression and lower levels of life satisfaction than did study counterparts who lived with others (Mui & Burnette, 1994). Living alone may engender social isolation, especially if social contacts are not maintained.

In this study, a stress and coping framework (Aldwin 1994; Lazarus & Folkman 1984) was used to conceptualize and examine the relationship among stresses, coping resources and depression for Chinese immigrant elders. The stress and coping framework acknowledges the importance of personal and environmental stress, such as poor health, family dissatisfaction, stressful life events, and their effects on elders' overall well-being (Aldwin 1994; Mui 1993). Methods for coping with stress are determined by cognitive appraisal and include both cognitive and behavioral efforts to manage stresses that are appraised as taxing. Coping resources usually include physical, psychological, and social supports that are available to an individual (Burnette and Mui 1994; Lazarus and Folkman 1984). In the present study the author intended to answer two major research questions: (1) Do Chinese

immigrants who lived alone differ from those who lived with others in terms of socio-demographic characteristics, mental health status, and social support; and (2) What is the role of living arrangement, stresses, and coping resources factors in explaining depression among the Chinese immigrants?

METHOD

Sampling

Respondents were elderly Chinese immigrants living in a major U.S. metropolitan region who volunteered to participate in the study. Community-dwelling Chinese elderly immigrants were approached and interviewed by the author at senior centers and congregate meal sites in a Northeast metropolitan area from December 1994 to December 1995. Respondents were included in the study when judged to be without psychiatric or memory problems as determined by the Chinese version of the Short Portable Mental Status Questionnaire (SPMSQ) (Chi & Boey, 1993). No one was screened out by this procedure and the response rate was 98 percent. Because the majority of respondents were not able to read in any language, and because the researcher desired a consistent procedure, all respondents who volunteered for the study were administered the questionnaire through face-to-face interviews. The author administered a Chinese language questionnaire which was developed to assess sociodemographics, informal support system, self-rated health status, stressful life events, and depression. All data collection was conducted by the author, who is a native speaker of Chinese.

Measures

The Chinese language Geriatric Depression Scale (GDS) 15-item Short Form, the dependent variable, was used to measure depression. The GDS was chosen because it is one of the most widely used and highly recommended screening measures for depression in older adults (Mui, 1996c; Olin, 1992; Thompson et al., 1988). It is a 15-item inventory that takes 10 minutes to administer. Previous study populations have included psychiatric and medical patients and normal elders. The GDS has excellent reliability and validity (test-retest reliability = .85; internal consistency = .94). The GDS has been validated against Research Diagnostic Criteria (RDC) (Spitzer et al., 1978) and is able to discriminate among normals and mildly and severely depressed. It performs as well as the DSM-III-R symptoms checklist in predicting clinical diagnoses (Parmelee et al., 1989). The assessment of depression in an elderly population is more difficult than in a younger population be-

cause of the higher prevalence of somatic complaints, genuine physical problems, and medication use. One of the strengths of the GDS is that it contains no somatic items that can introduce age bias into the depression screening scale and inflate total scores among the elderly population (Berry et al., 1984; Kessler et al., 1992). Another strength of the GDS is its simple YES/NO response format for symptom endorsement. This is preferable for respondents with limited formal education (Olin et al., 1992).

Measures of other major independent variables were as follows. Social support was operationally defined by five areas: size of social network, help provided by family members, satisfaction with the quality of family help, existence of a close friend, and contact with friends. Elderly respondents also rated their perceived health status on a four-point scale ranging from ''excellent'' to ''poor.'' Stressful life events were measured by asking respondents to answer ''yes'' or ''no'' to the following question: ''In the past 3 years, did you experience the following events?'' These events were: children moved out, serious illness or injury of family member, family discord, unemployment, and financial difficulty. These stressful life events were selected because they were used in previous research with Chinese elders (Chi & Boey, 1993; Mui, 1996b). Sociodemographic variables (age, sex, marital status, income, language spoken, education, length of stay in the U.S., and living arrangements) were also measured so as to ascertain background characteristics of the sample.

RESULTS

Characteristics of Older Chinese Respondents

The mean age of respondents living alone was somewhat older than respondents living with others (75.5 vs. 73.2); ages ranged from 62 to 99. All were participants in senior centers and congregate meal sites. Table 2 presents sociodemographic characteristics by living arrangement. Percentages of respondents in other demographic characteristics were almost identical, but age, marital status, gender, education, and length of stay in U.S. differed considerably by living arrangement. Almost one-third of Chinese immigrants living alone were 80 years and older and more than half of them were widowed. About 68 percent of respondents living alone were women, were somewhat better educated, and had longer length of stay in the U.S. Most respondents, regardless of their living arrangement, spoke Chinese and Chinese dialects only and a few knew English. The average length of stay in the U.S. was 19 years, and all respondents were born in Asian counties. Perhaps because of their low levels of education, their income levels were also low, with over 57% receiving less than $500 a month from either Social Security or SSI.

TABLE 2. The Profile of the Elderly Chinese Immigrant Sample by Living Arrangements

	Living with others (n = 112) 76.2%	**Living alone** (n = 35) 23.8%	**Total** (n = 147) 100%
Age*			
60-69	42.6	23.1	36.8
70-79	41.0	46.1	42.5
80-89	14.8	15.4	14.9
90 and above	1.6	15.4	5.8
Marital Status**			
Married	65.2	22.6	51.5
Widowed	27.3	54.8	36.1
Never married/divorced	7.5	22.6	12.4
Gender (% Women)**	45.5	67.7	52.6
Language Spoken			
English	1.5	3.2	2.1
Cantonese	80.3	58.1	73.2
Mandarin	9.1	16.1	11.3
Toishanese	7.6	16.1	10.3
Others	1.5	6.5	3.1
Education*			
No education	12.7	34.5	19.6
Grade School	50.8	20.7	41.3
High School	20.6	24.1	21.7
College level	15.9	20.7	17.4
Religion			
No religion	63.6	54.8	60.8
Buddhist	24.2	22.6	23.7
Catholic	4.6	9.7	6.2
Protestant	6.1	12.9	8.2
Others	1.5	0.0	1.0
Income			
Less than $500/mo.	58.7	51.7	56.5
$501 to $1,000/mo.	36.5	37.9	37.0
More than $1,000	4.8	10.4	6.5
Years of Stay in the U.S. (Means)*	17.4	24.1	19.5
Born Overseas	100.0	100.0	100.0

Chi-square statistics were used. * $p < .05$. ** $p < .01$. **** $p < .0001$.

Social Network and Life Events

Table 3 describes the respondents' social network size, social contact, help provided by family members, perceived satisfaction with the quality of family help, and number of stressful life events by living arrangement. About 24

TABLE 3. Social Support and Stressful Life Events by Living Arrangements of the Chinese Elderly Immigrant Sample

	Living with others (n = 112) 76.2%		Living alone (n = 35) 23.8%		Total (n = 147) 100%	
Family Network	**M**	**SD**	**M**	**SD**	**M**	**SD**
Number of adult children	3.0	1.8	2.9	2.2	2.9	1.8
Number of sons/daughters-in-law	2.1	1.7	2.9	2.1	2.4	1.9
Number of grandchildren	3.9	3.0	4.9	3.7	4.2	3.3
Number of other relatives[a]	1.9	3.0	1.6	3.4	1.8	3.1
Assistance Provided by Family Members (%)						
Emotional support	69.8		53.3		64.5	
Financial support	40.3		36.7		39.1	
Help with decision making	54.8		46.7		52.2	
Help with activities of daily living*	44.6		23.3		37.9	
Help with medical care/medication	46.0		37.7		43.0	
Help with shopping	59.7		56.7		58.7	
Perceived Satisfaction of Family Help (%)						
Very dissatisfied	8.4		8.8		8.5	
Dissatisfied	29.9		32.4		30.5	
Satisfied	29.0		38.2		31.2	
Very satisfied	32.7		20.6		29.8	
Have a Close Friend (%)	75.7		70.0		73.9	
Contact with Friends (last week) (%)*						
Did not contact friend at all	23.1		44.8		29.8	
Contacted friends once	23.1		10.4		19.1	
Contacted friends twice to six times	29.2		31.0		29.8	
Contacted friends at least once/day	24.6		13.8		21.3	
Stressful Life Events (%)						
Children moved out	17.5		17.2		17.4	
Serious illness/injury in family	4.6		3.5		4.3	
Respondent had serious illness	4.6		6.9		5.3	
Family discord	3.1		3.5		3.2	
Unemployment in family	11.1		10.3		10.9	
Financial difficulty	14.3		17.3		15.2	

[a] including brothers, sisters, and other relatives.
Chi-square statistics were used.
* $p < .05$.

percent (n = 35) of the respondents lived alone, which is somewhat lower than the white elderly population (about one-third) in general (Burnette & Mui, 1994). Remaining respondents lived with either spouses and/or children. There were no significant differences by living arrangement in terms of social network characteristics in this sample. The average number of adult

children of the Chinese respondents was 2.9. About 65 percent of families provided emotional support and somewhat fewer than half provided financial support. More family members helped with activities of daily living with respondents living with them. Chinese immigrants living alone received significantly less assistance in activities of daily living. About half of respondents received help in decision-making, medical care, and grocery shopping. More than half of the respondents seemed to be satisfied with the help they got from family members. However, about 40% of the living alone respondents expressed some dissatisfaction with the quality of help they received. In terms of other social support, 70 percent of Chinese respondents reported having a close friend but living alone respondents seemed to be somewhat socially isolated because almost 45 percent of them did not have any contact with friends during past week.

The latter part of Table 3 presents the stressful life events that respondents experienced in the past three years before the interview. Percentages of respondents in each stressful life event were similar. However, a significant portion of respondents experienced difficult times, with 17% having children move out, 11 percent having unemployment in family, and 15 percent experienced financial difficulty. The data suggest that some respondents had to make some adjustments in the previous year due to the occurrence of these life events.

Health and Mental Health Status of Respondents

Table 4 presents health and mental health information of the respondents and descriptive statistics of major variables in the study. Results indicate that living alone respondents rated their perceived health status similarly as did respondents living with others. However, two groups differed significantly in terms of their reported depressed symptoms. The number of depressive symptoms for living alone respondents was 5.9 (SD = 4.4) significantly higher than living with others respondents' score of 3.7 (SD = 3.1). With few exceptions, there were major differences by living arrangement in GDS depression scores. A higher percentage of living alone respondents reported having problems with individual items of GDS Short Form. With regard to the first question on satisfaction of life in general (Item 1), living alone elderly Chinese appeared to feel worse than respondents living with others. Respondents who lived alone reported higher percentage in eight negative items (life is empty; often get bored; fear bad things; often get restless, worry about future; problem with memory; upset over little things; and feel like crying) and lower percentage in 3 positive items (satisfied with life; in good spirits; and happy most of the time). In sum, mental health status of living alone Chinese elderly respondents was much worse than that of respondents who lived with someone in their household.

TABLE 4. Descriptive Statistics of Major Variables by Living Arrangements of the Elderly Chinese Immigrant Sample

	Living with others (n = 112) 76.2%			Living alone (n = 35) 23.8%		Total (n = 147) 100%	
Geriatric Depression Scale (Short Form)							
Satisfied with life*	86.5			66.7		81.8	
Dropped activities/interests	33.7			43.7		36.1	
Life is empty*	25.5			43.8		30.0	
Often get bored*	31.4			48.5		35.6	
In good spirits**	84.5			66.7		80.8	
Fear bad things*	23.0			40.6		27.3	
Happy most of the time*	77.7			56.3		72.6	
Often get restless*	26.5			45.2		31.0	
Worry about the future*	22.6			44.8		27.8	
Problem with memory*	48.5			71.9		54.1	
Feel downhearted and blue	24.0			36.7		26.9	
Feel worthless	38.7			46.6		35.3	
Others are better off	38.1			50.0		40.9	
Upset over little things*	22.5			41.9		27.1	
Feel like crying**	8.8			31.3		14.2	
	Range	**M**	**SD**	**M**	**SD**	**M**	**SD**
GDS Short Form **	1-15	3.7	3.1	5.9	4.4	4.5	3.6
Self-rated health	1-4	2.7	0.8	2.4	0.8	2.7	0.8
Stressful life events	0-6	0.7	0.9	0.8	1.3	0.6	0.9
Satisfaction with family	1-4	2.8	1.0	2.7	0.9	2.7	0.9
Family network	0-36	11.0	7.2	12.2	8.6	11.4	7.6
Having a close friend	0-1	0.8	0.4	0.7	0.5	0.7	0.4
Contact with friends	0-7	1.6	1.1	1.1	1.1	1.4	1.1

Chi-square statistics were used.
* $p < .05$. ** $p < .01$.

In order to examine factors that were associated with depression of the elderly Chinese immigrants, a regression analysis was conducted, and ten independent variables (age, sex, education, living arrangement, self-rated health, number of stressful life events, satisfaction with family, size of family network, having a close friend, and contacts with friends) were included because these variables were important predictors in other studies (Dunkle, 1983; Krause & Goldenhar, 1992; Mui, 1996a; 1996b; 1996c; Norris & Murrell, 1984). Results indicated that the model explained 50% of the variance (adjusted R-square = 42%) in depression (Table 5). Five variables were significant in predicting depressive symptoms: perceived dissatisfaction with family (Beta = □ .30), poor self-rated health (Beta = □ .27), living alone (Beta = .26), number of stressful life events (Beta = .23), and higher levels of

TABLE 5. Regression Model: Predictors of Depressive Symptoms Among the Elderly Chinese Immigrant Sample (n = 147)

Variable	b	SE	Beta
Demographic Factors			
Age	− 0.01	0.04	− 0.03
Sex	− 1.18	0.66	− 0.18
Education	0.61	0.31	0.19*
Living alone	1.87	0.69	0.26**
Stress Factors			
Self-rated health	− 1.05	0.37	− 0.27**
No. of stressful life events	0.77	0.32	0.23**
Dissatisfaction with family	− 0.85	0.29	− 0.30**
Social Support Factors			
Size of family network	− 0.05	0.04	− 0.12
Having a close friend	− 0.28	0.35	− 0.03
Contact with friends	− 0.18	0.29	− 0.06
R-square	.50		
Adjusted R-square	.42		

* $p < .05$. ** $p < .01$.

education (Beta = .19). Living alone is the third strongest predictor in explaining depression score. These significant predictors, for the most part, are consistent with the findings of earlier studies using white and other ethnic elderly populations (see Table 1).

DISCUSSION

Findings of this study did confirm some existing notions about predictors of the mental health status of elderly Chinese immigrants. That higher education, living alone, poor perceived health, dissatisfaction with family support, and total number of stressful life events may be powerful predictors of depression are important empirical findings. These correlates of depression for elderly Chinese immigrants provide new insight into the design of culturally appropriate social work interventions. On the other hand, it is possible that the predictor variables–health status, living alone, stressful life events, dissatisfaction with family support–are the results, rather than the cause, of depression.

In any case, the findings suggest that elderly Chinese immigrants, like other elderly groups, are vulnerable to psychological distress in the form of depressive symptoms (Burnette & Mui, 1996; Mui, 1996a). This may be due

in part, to the stresses associated with immigration, language barriers, acculturation, poverty, illnesses, social isolation, perceived dissatisfaction of family support, family discord, financial difficulty, and splitting of households. According to the data, the elderly Chinese immigrants in this study reported more changes within their family systems than other stressful life events. More than 17 percent of them reported having children move out in the previous year. This is important empirical information for social work practitioners working with Chinese families.

One of the most interesting findings that higher level of education is associated with higher depression scores is not consistent with the literature (Burnette & Mui, 1994). One possible explanation is that the more educated Chinese immigrants may have higher expectations in life. The cultural displacement, life style changes, and language barriers in the U.S. may be especially difficult for them and may be a reason for depression.

The data showed that living alone was associated with a higher level of depression. This is also consistent with previous research (Burnette & Mui, 1996; Dean et al., 1992; McCallum & Shadbolt, 1989; Mui, 1996a). Living alone may cause social isolation and the loss of interaction with family and friends. Living alone may be due, in part, to the splitting of household and also may be an indication of intergenerational conflicts (Wong & Reker, 1986). This is a difficult emotional issue for elderly Chinese immigrants, who may still have high expectations of filial responsibility and family solidarity. Chinese culture places a strong emphasis on family togetherness and the interdependence of family members. The Chinese community gives high regard to family cohesion in terms of multigenerational family living arrangements. It is almost a norm rather than an exception for adult children to live with their older parents until they become married, or even after marriage. It is also culturally desirable for aging parents to live with a married adult child, preferably a married son (Hong & Ham, 1992). Therefore, an adult child's decision to move out is often a very stressful transition for aging Chinese parents because it engenders great disappointment and shame. Living alone of older parents could mean failure and embarrassment for all parties involved. Social workers need to be sensitive to the cultural meaning of the changes within a multigenerational family system and be able to provide supportive services to help elderly Chinese immigrants to accept and adapt to these changes.

In this study poorer self-rated health was found to be another important factor in the depression of elderly Chinese immigrants. This is consistent with other gerontological research (Burnette & Mui, 1996; Dunkle, 1983; Linn et al., 1979; Mui, 1996a). Previous studies on white as well as ethnic elders found that older persons who rated their health as poor were more likely to be depressed (Kemp et al., 1987; Mahard, 1988; Mui, 1993). The

issue of the coexistence of depression with physical illness is important and complex (Ouslander, 1982). Depressive symptoms are natural responses to physical illness. Furthermore, some of the depressive symptoms, such as sleep disturbance and fatigue, can result from physical illnesses or from drug treatments for those illnesses. A wide variety of physical illnesses can be accompanied by depressive symptoms in elderly people (Ouslander, 1982; Reifler, 1991). It is unclear whether the poorer self-rated health was a sign of physical illness or of a mental health problem because elderly Chinese immigrants might find the expression of physical problems culturally more acceptable. The data suggest that social workers must be sensitive to their clients' unspoken needs and provide information in terms of health education and preventive medicine.

Perceived satisfaction is one of the major factors determining the overall quality of life for elderly Chinese immigrants. The size of the family network of the Chinese elder did not correlate with the levels of their depressive symptoms, but the perceived satisfaction of family help did. This finding is consistent with the literature that suggests that the effects of support may depend more on its perceived quality than on its quantity (Borden, 1991; Mui, 1992; 1996b; Wethington & Kessler, 1986). In the present study the perceived satisfaction with family help was a significant variable in explaining depressive symptoms. Chinese elders may have high expectations of family help, but the families of these Chinese elderly may not feel the same, due to differences in acculturation level. More research is needed, both to replicate these findings and to examine the role of traditional norms of family help and care for the elderly people. This research should be conducted in the context of the Chinese intergenerational family from the perspective of both Chinese elders and their family members. In addition, social workers providers need to design interventions to help elders cope with these life events, and evaluation of their unmet needs so as to improve their quality of life.

Furthermore, the total number of stressful life events influenced the depression level of Chinese elderly respondents which is also consistent with the mainstream literature (Dean et al., 1992; Smallegan, 1989). It is understandable that elderly Chinese immigrants may feel more depressed when they experienced more stressful life events because they may not have enough social resources such as language skills, financial, physical, and emotional resources to cope with these stressful events. This may create tremendous conflicts and tensions for the family system, especially for families that are already under pressure and do not have sufficient emotional and financial coping resources. It is therefore important for social workers to be sensitive to the cultural meanings and impact of such changes on Chinese intergenerational families.

The findings of this study must be interpreted with caution. The study was

limited by a small sample size and the voluntary nature of subject participation. Although age and gender were not associated with increased depression in the present cross-sectional sample, results may have differed had a large sample and a longitudinal design been used. Future studies should employ measures of social support with established reliability and validity for elderly populations, and with cultural relevance for this group of ethnic minority elderly. Finally, the self-rated measures in the present study may have been biased because of the cultural norm of moderation in expressing feelings and emotions among Chinese (Chi & Boey, 1993). The findings of the present study are most appropriately generalizable to elderly Chinese immigrants who are not mentally impaired and who reside in the community.

CONCLUSION

Recent dramatic increases in the Asian population of the United States, and the aging of this population, guarantee that in the future social workers will be called upon to serve the mental health needs of elderly Asian Americans. Because of the stresses associated with immigrations and acculturation, elderly Chinese American immigrants are likely to develop mental health problems. The most prevalent of these problems–depression–can only be addressed effectively with careful attention to the cultural values and expectations of this group. The present study suggests those social workers helping this group should pay special attention to clients' self-perceived health, education level, their living situation, their level of dissatisfaction with help from family members, and stressful life events in their lives. Consideration of these variables is essential to the design of culturally appropriate mental health interventions for elderly Chinese immigrants.

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