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SOCIAL SUPPORT AND DEPRESSION AMONG ELDERLY CHINESE PEOPLE IN HONG KONG*

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ABSTRACT

This study examines the association between social support and depressive symptomatology in a representative community sample of 1106 Chinese people in Hong Kong aged sixty years or older. Significant bivariate relationships were found between depression and all dimensions of social support including social network size, network composition, social contact frequency, satisfaction of social support, instrumental/emotional support, and helping others. Using multiple regression models, the authors found that at least one measure of these six dimensions of social support was associated with depressive symptomatology, even after controlling for socio-demographic, and functional disability. We found that social support from family is important for elderly Chinese people in Hong Kong, and satisfaction with support is a more important predictor of depression levels than other objective measures of network relationships. Lastly, it was found that material aid and instrumental support is more important in preventing depression for elderly individuals in Hong Kong than emotional support.

In Hong Kong, the population of persons aged sixty and above has increased from 150,000, or 5 percent of the total population, in 1961 to 616,901, or 13 percent, in

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1991, and it is expected to reach 16 percent in 2001 (Census & Statistics Department, 1992). By 2006, it is estimated that there will be approximately one million people aged sixty and above in Hong Kong (Census & Statistics Department, 1997). The elderly population in Hong Kong is generally physically healthy, and in 1996 the life expectancy of men and women was 76.3 years and 81.8 years, respectively (Census & Statistics Department, 1997). Self-assessed and objective health measures suggest that only a small proportion of this population cannot care for themselves (Chi & Boey, 1993). In fact, less than 4 percent of the population aged sixty and above are in residential care facilities (Health & Welfare Branch, 1994). However, while the physical health status of the elderly population in Hong Kong is good, the mental health status of the elderly population is rather poor (Chi, 1995).

In Hong Kong, a relatively large proportion of old people are depressed: approximately 11 percent of men and 15 percent of women, aged sixty-five or over (Liu, Lee, Yu, Lee, & Sun, 1993). The proportion of older people with depressive symptoms increases significantly with their age, and the prevalence rate of depression assessed by the Geriatric Depression Scale among old people aged seventy or above was 29 percent and 41 percent for men and women, respectively (Woo et al., 1994). This is quite high compared to the reported prevalence rates of depression (11% to 20%) for Caucasians living in the community in the United States (Katona, 1991). Furthermore, Hong Kong has one of the highest elderly suicide rates in the world (Chi, Yip, & Yu, 1997); the suicide rate in adults aged seventy-five or above was 53.0 deaths per 100,000 in 1994. Moreover, over 30 percent of the suicide deaths occurring in Hong Kong, were of old people aged sixty or above, while this group of people only comprised 14 percent of the total population.

Recent evidence suggests that older adults with high levels of social support report better mental health (Antonucci, Fuhrer, & Datigues, 1997; Auslander & Litwin, 1991; Krause & Borawski-Clark, 1994; Oxam, Berkman, Kasl, Freeman, & Barrett, 1992). Social support is a multi-dimensional construct—many researchers have accepted that the indicators of social support are size of social network, marital status, frequency of contact with members in the social network, instrumental support, emotional support, quality of social support, and reciprocal helping of others (George, 1996). The effect of social support on depression has been demonstrated in Chinese cultures (Krause & Liang, 1993; Mui, 1996; Woo et al., 1994), but in these studies, examination has been restricted to two or three social support measures, and no effort has been made to examine a full range of social support measures. The purpose of the present study was to extend previous research in the field of social support and depression by determining more specifically which aspects of social support are beneficial for avoiding depression by measuring a full range of measures of social support (including marital status, size of social network, network composition, frequency of social contact, level of satisfaction with social relationships, instrumental and

emotional support, and helping others) and then relating them to depression among elderly Chinese people.

Another issue about the relationship between depression and social support to be examined is the relative effects of social network and quality of social support on depression among older adults. Examination of social networks would seek to specify the structural properties such as size and composition of the social network, whereas examination of the quality of social support seeks to describe the qualitative aspects of the supporting relationship, including the satisfaction with the support received. Previous studies have shown that the quality of social support accounted for a greater proportion of variance associated with depression than social network variables in American and French older adults (Antonucci et al., 1997; Oxam et al., 1992). Therefore, the second objective of the current study is to assess the relative contributions of social networks factors and subjective measures of social support quality to depression among elderly Chinese people in Hong Kong.

SOCIAL SUPPORT AND DEPRESSION

Several researchers have found a beneficial effect of being married on depressive symptomatology (Brown, Milburn, & Gary, 1992; Dean, Kolody, Wood, & Matt, 1992; Williams, Takeuchi, & Adair, 1992). Although studies have found a positive association between size of social network and depression (Antonucci et al., 1997) or recovery from major depression (George, Blazer, Hughes, & Fowler, 1989), inconsistent findings have been shown in other studies (George, 1992).

It has also been found that the greater the frequency old people interact with others in their social networks, the fewer depressive symptoms they have (Dean, Kolody, & Wood, 1990; Dean et al., 1992). In studies of the relationship between depression and instrumental support, i.e., tangible assistance with tasks ranging from feeding to doing household chores or shopping, results have been contradictory. Reviski and Mitchell (1990) reported higher levels of instrumental help were associated with lower psychological stress, whereas Mitchell, Matthews, and Yesavage (1993) found a negative effect of instrumental support on depressive symptoms. Emotional support is the presence of a close relationship with someone who can always be counted upon to share feelings (Murphy, 1982); this entails the subjective perception of emotional intimacy in the relationship (Oxam et al., 1992). Most studies found emotional support contributes to a lower level of depressive symptoms among older adults (Antonucci et al., 1997; Oxam et al., 1992).

The perceived adequacy of social support or satisfaction with the amount or quality of social support is an important component of social support. Perceived high-quality support appears to have a salubrious effect on depressive symptoms (Dean et al., 1990; Holahan & Holahan, 1987; Krause, 1987; Turner & Noh, 1988). Lastly, social support may be perceived as a social exchange process

(Shi, 1993), which means helping others is another dimension of social support. Krause (1987) found that the amount of support elderly people provided to members of their social network was associated with their depressive symptoms.

In summary, current research with social support in old people indicates that various aspects of social support are related to depressive symptomatology. However, the enthusiasm for this area of study has not been matched by a well accepted understanding of the factors responsible for the effect of social support on depression in older adults. We believe this is because previous studies have not examined a full range of measures in social support. In addition, many dimensions of social support are bivariately correlated with depression, but the effect of these social support dimensions disappear in multivariate models which include other dimensions of social support (Auslander & Litwin, 1991; Dean et al., 1992; George, 1992). Therefore, in the present study, each individual dimension of social support was separately examined, and then all social support measures were considered together in a multivariate model so that the relative importance of each dimension was found.

DEPRESSION AND SOCIAL SUPPORT IN CHINESE SOCIETIES

Studies have shown that cultural factors may affect the nature and amount of social support provided to older adults (Krause & Liang, 1993; Palmore & Maeda, 1985). Some Western studies have shown that the effect of support from friends on psychological distress among the elderly is stronger than the effect of support from adult children and other relatives (Dean et al., 1990; Lee & Ishii-Kuntz, 1987). In contrast, family support plays a central role in social support among elderly Chinese people. Filial piety, the traditional Chinese attitude of respect and concern for old people, requires young family members to maintain the material and mental well-being of elderly family members (Bond & Hwang, 1986; Chang, Chang, & Shen, 1984; Ho, 1996; Sher, 1984). Furthermore, it was reported that 69 percent of elderly people in Hong Kong lived with their unmarried children or in extended-family households (Central Committee on Services for the Elderly, 1988). This particular type of living arrangement facilitates support from family members. Based upon these research findings, we hypothesize that, among elderly Chinese people, social support from family members exerts a greater effect on depression than does social support from friends.

The high prevalence of depression among Chinese people in Hong Kong raises the question of whether the relationship between social support and depression found in Western cultures can be found in this Chinese population as well. This unique community, therefore, provides an interesting opportunity to look for cross-cultural differences in the relationship between social support and depression. In using a representative sample of the Chinese population in Hong Kong, the findings of the current study provide data relevant to the issue of whether

results obtained in Western cultures generalize to Asian cultures. We also believe this study makes a contribution to the understanding of the relationship between social support and depression unique to Hong Kong Chinese society.

Two issues were of primary concern: a) What is the link between depressive symptomatology and six categories of social support measures—network size, network composition, frequency of social contact, satisfaction with social support, receiving instrumental and emotional help, and helping others—among elderly Chinese people in Hong Kong? and b) Are different aspects of social support (i.e., social network vs. quality of social support and family support vs. support from friends) differentially associated with depressive symptomatology in this sample?

METHOD

Participants and Procedure

A cross-sectional study method was adopted. Data for this study were obtained from respondents who were community-dwelling Chinese people aged sixty years and over—selected by random sampling from a list of households from the Census and Statistics Department. This list was used because it contained all Hong Kong households used in Hong Kong Census, therefore it provided us with the best approximation to the population. In addition, it was the most efficient source in comparison with other sampling frames in the local context.

A letter explaining the purpose of the study and requesting an interview was sent to each of the potential participants. Some 1305 persons replied agreeing to be interviewed, and 1106 out of these respondents were successfully interviewed, yielding an 85 percent response rate. The interviews were conducted by college students, who were given intense training and were under close supervision by the authors. All participants were interviewed in their residences during the year of 1995, and each interview took about forty-five minutes to complete on average.

Measures

Depressive Symptoms

The twenty-item Center for Epidemiological Studies of Depression (CES-D) scale was used to measure depressive symptoms. Radloff (1977) discussed in detail the properties of this scale and its appropriateness for use with community-dwelling adults. The participants were asked about twenty depressive symptoms that they might have experienced in the seven-day period preceding the interview. The twenty items were scored on a standard 4-point scale from 0 to 3, and the score was the unweighted sum of the twenty component items, with a potential range of 0 to 60. The Chinese version of the CES-D has been validated in earlier studies

(Chi & Boey, 1993) and the Cronbach's alpha of this Chinese version of the CES-D in the present sample was 0.87.

Socio-Demographic Variables

The effects of social support on symptoms of depression were examined after controlling socio-demographic indicators. The socio-demographic information consisted of age (in years), gender (0 = male, 1 = female), and education (in years of schooling completed).

Functional Disability

Functional disability was measured on a scale that includes activities of daily living (ADLs), instrumental activities of daily living (IADLs), and physical performance. The ADL items include bathing, eating, dressing, using the toilet, transferring from bed to chair, and grooming (Jette & Branch, 1981; Katz, Downs, Cash, & Grotz, 1970); IADL items are cooking, shopping, housework, using the phone, financial management, and traveling by public transportation (Lawton & Brody, 1969); the physical performance items are walking a half mile, standing for about two hours, climbing up a flight of stairs, lifting a 10-pound weight, crouching, lifting the arms over the head, and picking up small objects (Rosow & Breslau, 1966). Responses to these instruments were ordered according to a Guttman scale, ranging from "no difficulty" (0) to "unable to" (3), with high scores indicating more disability. The internal consistency was (standardized Cronbach's alpha) 0.88, 0.79, and 0.83 for ADL, IADL, and physical performance, respectively.

Network Size/Composition

Measures of network size included marital status (0 = not married, 1 = married), number of close relatives, number of close relatives with whom respondents were in contact with at least once a month, number of relatives the respondents felt close to, number of friends who were in contact at least once a month, and number of friends the respondents felt close to. Network composition included the social network respondents felt close to and respondents see once a month (1 = all family, 2 = mostly family, 3 = equal number of family and friends, 4 = mostly friends, 5 = all friends).

Social Contact Frequency

Frequency of social contact was measured based on the reported frequency of respondents' contact with relatives who were not living with respondents and the reported frequency of respondents' contact with friends. The frequency ranged from 0 = less than once a month, 1 = once a month, 2 = two to three times a month, 3 = once a week, 4 = two to six times a week, to 5 = everyday.

Quality of Social Support

The quality of social support was assessed by asking about the level of satisfaction the respondents had in social support provided by people in their social network (1 = very unsatisfied, 2 = unsatisfied, 3 = neutral, 4 = satisfied, 5 = very satisfied).

Instrumental and Emotional Support

Emotional support was measured based on the reported willingness of five types of social ties (i.e., spouse, children or children-in-law, other relatives, friends or neighbors, and the others) to "listen when you have a problem." The assessment was on a 5-point scale ranging from 1 = very unwilling to 5 = very willing. The summary measures constructed for this question was the maximum frequency reported among these five types of ties, i.e., the maximum frequency from any one of the possible sources.

Instrumental support was assessed by several items. One item measured the reported reliability of these five types of social ties to "take care of you when you are ill." This assessment was on a 5-point scale ranging from 1 = completely unreliable to 5 = very reliable. The summary measure constructed for this item was the maximum frequency reported among these five types of ties, i.e., the maximum frequency from any one of the possible sources.

Another item, adopted from the Lubben Social Network Scale (Lubben, 1988), was the frequency of discussion with others when an important decision has to be made. It was measured on a 6-point scale ranging from 0 = never to 5 = always. Seven items of tangible support provided by family members living with respondents (alpha = 0.84) and not living with respondents (alpha = 0.73) were also included. These seven items included financial assistance, providing advice when making important decisions, helping in daily living activities, providing health care, leisure activities, escorting to outings, and helping with household chores. Respondents answered "yes" or "no" as to whether or not these forms of assistance were provided by family members living with respondents and if these were provided by family members not living with respondents. The scores of these seven items were summed for assistance provided by family members living with respondents and for family members *not* living with respondents, respectively.

Helping Others

Helping others was assessed with four questions. Two items were based on the reported frequency with which respondents provided assistance to the others with household chores like shopping, preparing meals or providing child care and listening in when others had problems. Scores ranged from 1 = never to 5 = every day.

Emotional and instrumental support to others was measured based on the reported frequency with which respondents provide comfort when others of three types of social ties (i.e., close relatives, other relatives and friends or neighbors) were sad, or when they provided financial support to people of these three types of social ties. Responses were coded on a 5-point scale ranging from 1 = never to 5 = very frequently. The summary measures constructed for each of these two questions were the maximum frequency reported among these three types of ties, i.e., the maximum frequency from any one of the possible sources.

Statistical Analysis

First, the distributions in the form of frequency, percentages, means, and standard deviations for all independent and dependent variables were examined. Second, the bivariate correlations between the depressive symptomatology and various measures of social support were conducted. The analysis proceeded in three steps. First, we examined the association between depressive symptomatology and the control variables including age, gender, ADL, IADL, and physical performance. This was the base model. Second, we examined the association between depressive symptomatology and six categories of social support measures after taking into account the control variables including age, gender, ADL, IADL, and physical performance. To do this, we conducted five series of multiple regression analyses in which we entered control variables and each of six categories of social support measures in each regression analysis separately. Third, we examined whether the association between different aspects of social support and depressive symptoms changed when all other aspects of social support were entered in the multivariate model. As a result, we conducted a hierarchical regression analysis in which we entered all social support measures including network size and composition, social contact frequency, satisfaction in social relationships, instrumental and emotional support, and helping others measures and the control variables.

RESULTS

Descriptive Statistics of Independent Variables

Frequencies, percentages, means, and standard deviations of the independent and dependent variables used in the regression models are presented in Table 1.

Correlations between Independent and Dependent Variables

We examined the intercorrelations among all independent and dependent variables for all participants. As can be seen in Table 1, we found significant correlations between CES-D scores and all measures of social support, except the

network composition of relatives and friends felt close to. Most of these significant associations are moderate $r \geq 0.15$). It should be noted, though, that the associations between predictor variables belonging to social network and social support variables were quite strong in some cases $r = 0.5$ to 0.6).

Relation between Control Variables and Depressive Symptoms

As Tables 2 through 5 indicate, consistent with much previous research, elderly adults' level of education, IADL, and physical performance are significantly related to their scores on measures of depressive symptomatology. Specifically, fewer years of education, higher levels of impairment of IADL, and physical performance are associated with higher levels of depressive symptomatology. A base model regression analysis with only these variables accounted for 11 percent of the variance, $p < 0.0001$.

Relation between Network Size and Depressive Symptoms

In Table 2, we examined the association between network size measures and depressive symptomatology. As can be seen in Table 2, this model was significant ($p < 0.0001, R^2 = 0.16$). Two measures of network size were significantly related to depressive symptomatology even after taking into account the control variables. People with more relatives felt close to and with more friends felt close to were less likely to be depressed. In comparison with the base model, this model accounted for an additional 5 percent of the variance.

Relations between Network Composition and Depressive Symptoms

We examined the association between network composition measures and depressive symptomatology in Model 2. As can be seen in Table 3, Model 2 was also significant ($p < 0.0001$, $R^2 = 0.12$), and this model only accounted for an additional 1 percent of the variance, compared with the base model. Table 3 shows that the subjects whose social networks of people seen once a month consisted only of family members, or mainly of family members, reported lower levels of depressive symptomatology than subjects whose social networks consisted only of friends or mostly of friends, after taking into account control variables.

Relation between Social Contact Frequency and Depressive Symptoms

The association between the measures of frequency of social contact and depressive symptomatology was examined in Model 3. As can be seen in Table 3,

Table 1. Distribution of Socio-Demographic, Social Relationships, and CES-D Variables among 1106 Community-Dwelling Older Chinese Adults in Hong Kong

	Frequency (%)	*M*	*SD*	Correlation with CES-D (r)
Demographic variables				
Gender				0.11**
Male	488 (44.1)			
Female	618 (55.9)			
Age (60-95)		72.55	7.33	0.09*
Year of education (0-21)		3.09	4.27	–0.16**
Functional status				
ADL (0-18)		0.32	1.45	0.17**
IADL (0-18)		2.00	3.03	0.29**
Physical performance (0-21)		5.35	5.16	0.30**
Network size				
Marital status				0.10**
Married (1)	594 (53.7)			
Not married (0)	512 (46.3)			
Number of close relatives		15.54	9.55	–0.13**
Number of close relatives seen once a month		10.14	8.33	–0.19**
Number of relatives felt close to		5.30	5.27	–0.24**
Number of friends seen once a month		3.53	4.35	–0.14**
Number of friends felt close to		3.08	3.94	–0.11**
Network Composition				
Network composition (felt close to)		2.58	1.25	0.02
All family (1)	263 (23.8)			
Mostly family (2)	346 (31.3)			
Equal numbers of family and friends (3)	150 (13.6)			
Mostly friends (4)	290 (26.2)			
All friends (5)	57 (5.2)			
Network Composition (seen once a month)		2.07	1.04	0.07*
All family (1)	336 (30.4)			
Mostly family (2)	550 (49.7)			
Equal numbers of family and friends (3)	61 (5.5)			
Mostly friends (4)	126 (11.4)			
All friends (5)	33 (3.0)			

Table 1. (Cont'd.)

	Frequency (%)	*M*	*SD*	Correlation with CES-D (r)
Frequency of social contact				
With relatives		1.78	1.59	–0.20**
Less than once a month (0)	336 (30.4)			
Once a month (1)	177 (16.0)			
2-3 times a month (2)	268 (24.2)			
Once a week (3)	132 (11.9)			
2-6 times a week (4)	111 (10.0)			
Everyday (5)	82 (7.4)			
With friends		2.09	1.94	–0.11**
Less than once a month (0)	391 (35.4)			
Once a month (1)	132 (11.9)			
2-3 times a month (2)	118 (10.7)			
Once a week (3)	100 (9.0)			
2-6 times a week (4)	180 (16.3)			
Everyday (5)	185 (16.7)			
Satisfaction of social support		3.98	0.82	–0.26**
Very unsatisfactory (1)	5 (0.5)			
Unsatisfactory (2)	26 (2.4)			
Neutral (3)	276 (25.0)			
Satisfaction (4)	475 (42.9)			
Very satisfactory (5)	324 (29.3)			
Instrumental and emotional support				
Willingness to listen to problems (1-5)		3.26	.091	–0.20**
Care for when ill (1-5)		3.15	1.05	–0.12**
Discusses important decisions (0-5)		2.76	1.55	–0.24**
Tangible support from relatives living with subject (0-7)		5.19	2.50	–0.24**
Tangible support from relatives not living with subject (0-7)		3.78	2.52	–0.25**
Helping others				
Assists in household chores (1-5)		2.67	1.79	–0.18**
Listens to others' problems (1-5)		2.32	1.46	–0.12**
Provides comfort (1-5)		2.53	1.24	–0.21**
Provides financial support (1-5)		1.14	1.23	–0.16**
CES-D		11.55	10.00	—

Note: CES-D = Center for Epidemiological Studies Depression Scale (Radloff, 1977). In this study, the Chinese version (Chi & Boey, 1993) of the CES-D was used.

*$p < 0.05$

**$p < 0.01$

Table 2. Summary of Multiple Regression Analysis for Variables Predicting Depression among Elderly Chinese People in Hong Kong for Base Model and Model 1

	Base Model			Model 1		
Variables	B	SE B	β	B	SE B	β
Demographic variables						
Age	.006	.041	.004	−.006	.042	−.004
Gender	.228	.625	.011	.612	.656	.030
Years of education	−.235	.073	−.101**	−.236	.071	−.101**
Functional Impairment						
ADL	.150	.251	.021	.150	.245	.020
IADL	.487	.144	.145**	.356	.141	.106*
Physical performance	.341	.077	.174**	.325	.075	.166***
Network size						
Marital status				−.207	.651	−.010
Number of relatives				.024	.040	.022
Number of relatives seen once a month				−.097	.051	−.079
Number of relatives felt close to				−.299	.064	−.157***
Number of friends seen once a month				.169	.142	.066
Number of friends felt close to				−.314	.128	−.136*
	$F(6,1067) = 23.03$***			$F(12,1061) = 17.12$***		
	$R^2 = 0.11$			$R^2 = 0.16$		

*$p < 0.05$
**$p < 0.01$
***$p < 0.0001$

Model 3 was significant ($p < 0.0001$, $R^2 = 0.14$). Both measures of frequency of social contact with relatives and with friends were significantly related to depressive symptomatology. The more frequently subjects were in contact with their relatives or their friends, the fewer depressive symptoms they reported. In comparison with the base model, this model accounted for an additional 3 percent of the variance.

Relation between Quality of Social Support and Depressive Symptoms

We examined the association between quality of social support and depressive symptomatology in Model 4. As can be seen in Table 4, overall, Model 4 was

Table 3. Summary of Multiple Regression Analysis for Variables Predicting Depression among Elderly Chinese People in Hong Kong for Model 2 and Model 3

	Model 2			Model 3		
Variables	B	SE B	β	B	SE B	β
Demographic variables						
Age	.002	.041	.001	.001	.041	–.000
Gender	.176	.625	.009	.408	.618	.020
Years of education	–.240	.073	–.103**	–.220	.071	–.094**
Functional impairment						
ADL	.131	.251	.018	.144	.247	.020
IADL	.491	.143	.146**	.443	.142	.131**
Physical performance	.339	.077	.174**	.315	.076	.161***
Network composition						
Network composition of relatives and friends felt close to	–.172	.297	–.021			
Network composition of relatives and friends seen once a month	.745	.353	.078*			
Frequency of social contact						
Frequency of contact with relatives				–.915	.182	–.146***
Frequency of contact with friends				–.317	.149	–.062*
	$F(8,1065) = 17.99$*** $R^2 = 0.12$			$F(8,1065) = 21.95$*** $R^2 = 0.14$		

*$p < 0.05$
**$p < 0.01$
***$p < 0.0001$

significant ($p < 0.0001$, $R^2 = 0.16$). Table 4 shows that subjects who were more satisfied with the social support provided by members in their social networks reported significantly lower levels of depressive symptomatology. In comparison with the base model, this model accounted for an additional 5 percent of the variance.

Relation between Instrumental/Emotional Support and Depressive Symptoms

We examined five measures of instrumental and emotional support from relatives and friends in Model 5. Table 4 shows that Model 5 was significant ($p < 0.0001$,

Table 4. Summary of Multiple Regression Analysis for Variables Predicting Depression among Older Chinese People in Hong Kong for Model 4 and Model 5

	Model 4			Model 5		
Variables	B	SE B	β	B	SE B	β
Demographic variables						
Age	.000	.040	.000	−.056	.040	−.041
Gender	.343	.609	.017	.560	.599	.028
Years of education	−.169	.071	−.072*	−.193	.070	−.083**
Functional impairment						
ADL	.039	.244	.005	.050	.239	.007
IADL	.450	.140	.134**	.393	.138	.117**
Physical performance	.334	.075	.176***	.313	.074	.161***
Satisfaction with social support	−2.652	.346	−.218***			
Instrumental and emotional support						
Frequency of discussion about decisions				−.303	.201	−.047
Willing to listen to respondents' problems				−.072	.326	−.007
Reliable in giving care when ill				−.999	.304	−.105**
Tangible help from relatives living with respondent				−.475	.125	−.119**
Tangible help from relatives not living with respondent				−.604	.117	−.152***
	$F(7,1066) = 29.20$*** $R^2 = 0.16$			$F(11,1062) = 23.60$*** $R^2 = 0.20$		

*$p < 0.05$
**$p < 0.01$
***$p < 0.0001$

$R^2 = 0.20$). The variance accounted by this model was greatly improved over Base Model (20% vs. 11%). Three measures of tangible support were significantly associated with depressive symptomatology. Respondents who had more reliable help when they were ill, and who received more tangible help from relatives living with the respondents and from relatives not living with respondents reported lower levels of depressive symptomatology.

Relation between Helping Others and Depressive Symptoms

We examined the relationship between four measures of helping others and CES-D scores in Model 6. Table 5 shows that Model 6 accounted for 14 percent of variance and was statistically significant ($p < 0.0001$). The findings indicate that respondents who more frequently provided comfort to others who were sad, and respondents who more frequently provided financial help to people in need, reported lower levels of depressive symptomatology.

Model 7 included all dimensions of social support including network size, network composition, frequency of social contact, quality of social support, instrumental and emotional support, and helping others. As can be seen in Table 5, this full model was significant ($p < 0.0001$, $R^2 = 0.24$), and it showed improvements over all the partial model. Specifically, the findings of Model 7 indicate that lower levels of depressive symptomatology were reported in respondents who were: married; had more relatives they felt close to; whose network members were all family members or mostly family members; who were in contact with their relative more frequently; who were satisfied with the social support they receive; who received more reliable help from others when they are ill; and those who received more tangible help from relatives they were not living with. It should be noted that all these social support measures were found to have moderate zero-order correlations with CES-D scores, except the network composition measure (Table 1).

Recall that there were moderate correlations between predictive variables used in the regression model, therefore, tolerance values of predictive variables were obtained before performing all eight regression models (including the base model). All these tolerance values were about 0.9, or higher, which were greater than the common cutoff threshold, 0.1 (Hair, Anderson, Tatham, & Black, 1995). As a result, the problem of multicollinearity between predictor variables was at an acceptable level.

In sum, this series of regression analysis indicated that all six dimensions of social support were significantly related to depressive symptoms, after controlling for demographic and functional variables, but the addition of instrumental and emotional support variables yielded the best fitting of the partial models. Moreover, Model 7 indicated that when all variables are considered simultaneously, at least one measure of each of the six dimensions of social support were significantly associated with depression, except helping others. Among these social support measures, the best independent predictor . . . etc. Among these social support measures, the best predictor of depressive symptomatology was satisfaction in social support, followed by the amount of tangible help from relatives not living with respondents and number of relatives felt close to.

Table 5. Summary of Multiple Regression Analysis for Variables Predicting Depression among Older Chinese People in Hong Kong for Model 6 and Model 7

	Model 6			Model 7		
Variables	B	SE B	β	B	SE B	β
Demographic variables						
Age	−.040	.042	−.029	−.040	.042	−.029
Gender	.483	.627	.024	1.171	.640	.058
Years of education	−.185	.073	−.079*	−.191	.070	−.082**
Functional impairment						
ADL	.118	.249	.016	−.012	.237	−.002
IADL	.409	.143	.121**	.317	.137	.194*
Physical performance	.308	.076	.158**	.309	.073	.158***
Network size						
Marital status				−1.343	.650	−.067*
Number of relatives				.025	.040	.023
Number of relatives seen once a month				−.057	.054	.047
Number of relatives felt close to				−.210	.073	−.110**
Number of friends seen once a month				−.234	.139	−.101
Number of friends felt close to				.128	.153	.050
Network composition						
Network composition of relatives and friends felt close to				−.405	.374	−.050
Network composition of relatives and friends seen once a month				.894	.419	.093*
Social contact frequency						
Frequency of contact with relatives				−.549	.183	−.087**
Frequency of contact with friends				−.283	.181	−.055
Satisfaction with social support				−1.777	.389	−.146***

Table 5. (Cont'd.)

	Model 6			Model 7		
Variables	B	SE B	β	B	SE B	β
Instrumental and emotional support						
Frequency of discussion about decisions				−.285	.242	−.043
Willing to listen to respondents' problems				−.011	.330	.000
Reliable in giving care when ill				−.719	.317	−.076*
Tangible help from relatives living with respondent				−.239	.133	−.060
Tangible help from relatives not living with respondent				−.470	.125	−.118**
Helping others						
Willing to discuss others' problems	−.364	.219	−.053	.344	.254	.050
Frequency of helping others	−.121	.173	−.022	−.013	.166	−.002
Frequency of providing comfort	−.740	.271	−.091**	−.009	.274	−.001
Frequency of providing financial help	−.591	.249	−.073*	−.434	.241	−.053
	$F(10,1063) = 17.15$*** $R^2 = 0.14$			$F(26,1047) = 12.92$*** $R^2 = 0.24$		

*$p < 0.05$
**$p < 0.01$
***$p < 0.0001$

DISCUSSION

The present investigation provides a description of the social support of a community-dwelling sample of Elderly Chinese people in Hong Kong and examines the association between different aspects of social support and depressive symptomatology. This study is about an interesting and practically important problem in an understudied population. Elderly Chinese people in Hong Kong, have social networks that consist, on the average, of eight relatives or close friends, and these are predominately family members. Moreover, the majority of older adults are satisfied with the social support they receive from members in

their social networks. It should be noted that these findings are consistent with studies of older adults in France and the United States (Antonucci & Akiyama, 1987; Antonucci et al., 1997).

Four important findings concerning this sample of elderly Chinese people in Hong Kong should be emphasized. First, the results indicate that almost all dimensions (except helping others) of social support are associated with depression, even when all dimensions of social support are considered simultaneously. This confirms the concept that the social support in older Chinese adults is a multi-dimensional construct, and each aspect of social support is related to mental health independently. Second, the findings also show that support from family is more important than support from friends among older Chinese adults. In our sample, older persons who are married, who have more relatives they feel close to, who have contact with their relatives more frequently, and who report that their social networks are made up completely or mostly of relatives, report fewer symptoms of depression. On the other hand, the number of friends felt close to and frequency of contact with friends are unrelated to depressive symptomatology when all dimensions of social support are included in the analyses. In other words, elderly Chinese people rely upon the social support from their family members more heavily than the social support from their friends.

Third, satisfaction with social support is the most important predictor of depression among various measures of social support. This means that the subjective perception of the quality of a supportive relationship is a better predictor than other objective measures of social support, such as the social network size. This finding is consistent with most previous studies of French and American older adults (Antonucci et al., 1997; George et al., 1989).

Fourth, our data also indicate that instrumental support is associated with depression, but emotional support is not. This is not consistent with Western studies (Antonucci et al., 1997; Oxam et al., 1992). Our findings may be due to the specific circumstances in Hong Kong, where there is no retirement protection scheme for its senior citizens. Therefore, among Hong Kong elderly, financial strain is an all too common experience. This being the case, compared with emotional support, tangible help or financial help which may relieve financial strain is more effective in avoiding depression (Chi & Chou, 1998).

Social Network and Depression

In terms of the association between different measures of social support and depression, the cross-sectional data of this study confirm findings based on samples of older adults from the United States and other cultures. The link between being married and depression—i.e., being married is associated with lower level of depression—is well established in the literature (Brown et al., 1992; Dean et al., 1990; Williams et al., 1992), and we have shown similar findings.

Moreover, this association is persistent even as other social support measures are included in multivariate analysis.

As mentioned earlier, both the number of relatives felt close to (one measure of network size) and the composition of the social network are related to depressive symptomatology. These findings are consistent with findings among French older adults (Antonucci et al., 1997) and older people with major depression (George et al., 1989). Antonucci et al. (1997) found that network size was associated with depressive symptoms among French elderly people. Network composition is seldom tested in social support studies, however, Antonucci et al. (1997) found a small but significant effect of network composition on depression: respondents whose networks were entirely composed of friends, had higher levels of depression. Findings of the present study support Antonucci et al. (1997), as we also found that respondents whose social network were entirely made up of friends showed higher levels of depression.

Our findings indicate that only frequency of contact with relatives, but not frequency of contact with friends, is associated with depression. This result is contradictory to a previous study in elderly Chinese people that found that infrequent contact with friends is a risk factor for depression (Woo et al., 1994). These inconsistent findings may be due to the fact that different measures of social support and other variables were used in the two studies. However, these results may explain the inconsistent findings concerning the effect of frequency of social contact on depression in previous studies (Dean et al., 1992; George, 1992), because our results indicate that whom the respondents were in contact with made a difference in the effect of the frequency of social contact on depression.

Helping Others and Depression

Helping others is associated with depressive symptoms among elderly Chinese people in Hong Kong. This is consistent with previous findings in the United States (Krause, 1987). However, this relationship disappears when the measures of helping others are considered with the other social support measures. The reason for this discrepancy remains unclear and should be explored in future studies.

The findings of the present study contribute to the literature by providing cross-cultural evidence concerning the effect of social support on depression in a representative sample of elderly Chinese people in Hong Kong. Moreover, a full range of social support measures has been examined in this study. Some findings are consistent with previous cross-sectional data and longitudinal findings from other countries, lending support to the generalizability of these data. However, some findings of this study are also quite singular and may highlight cultural differences in the effect of social relationships on depression. Specifically, among elderly Chinese people in Hong Kong social support from family members is more important than support from friends, and the effect of all dimensions of social support (except helping others) on depression is significant.

Limitations

We recognized that this research is based upon cross-sectional data and that longitudinal data are needed to further understand the causal and temporal relations between social support and depression among elderly Chinese people in Hong Kong. The preliminary results reported here nevertheless should encourage other investigators to examine a full range of social support measures in depression among old people. It is also important to bear in mind that the reports of all variables in this study were obtained from the elderly people themselves. Therefore, we recognize that future studies on the role of social support on depression would be strengthened by the use of data from multiple methods and sources.

In conclusion, many similarities in how different dimensions of social support affect depression among elderly Chinese people in Hong Kong and elderly Americans are evident, but there are important differences as well. These differences reflect the influence of culture on the role of social support. Family support is very important for elderly Chinese people in Hong Kong in avoiding depression. Therefore, efforts to promote well-being among older adults by enhancing the social support they receive from family members is justified by the study's findings. Furthermore, this study demonstrates that some Western constructs and relationships between social support and depression have cross-cultural use.

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