

# Life stress, social support, coping and depressive symptoms: a comparison between the general population and family caregivers

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Major depression is one of the four most prevalent psychiatric diseases in Taiwan. Furthermore, a study showed that 45 per cent of the family caregivers of persons with persistent psychiatric disability were at risk of depression. The present study aimed at examining if caregivers experienced more depressive symptoms than the general population while controlling for other variables (direct effect), and if the constellation of correlates of depressive symptoms was different between the general population and caregivers (interaction effect). Data from 1979 subjects were gathered in a national survey, using stratified random sampling. The results revealed that the caregivers experienced significantly more depressive symptoms than the general population. However, the effect disappeared when other variables were taken into account. Life stress appeared to be more important than coping and social support. The other two common correlates of depressive symptoms were age and being unmarried. Relational stress mattered especially for caregivers. Lastly, social support variables were significant only for the general population; satisfaction with support could buffer the negative effect of survival stress on depressive symptoms.

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## Introduction

The issue of depression has been the focus of much research in Western countries (Aranda, Castaneda, Lee & Sobel, 2001; Grattan, 2002; Kalil, Born, Junz & Caudill, 2001; Lin, Dean & Ensel, 1986; Rudnicki, Graham, Habboushe & Ross, 2001). Attention has also been given to the caregivers of individuals with long-term illness when depression is in question (Powers, Gallagher-Thompson & Kraemer, 2002; Schulz & Williamson, 1991; Song, Biegel & Milligan, 1997; Struening et al., 1995). In Taiwan, the epidemiological study in 1987<sup>1</sup> (Hwu, Yeh, Chang & Yeh, 1987) showed that major depression was one (6.4 per cent) of the four

most prevalent psychiatric diseases. This finding indicated that the emotional status of the general population warrants attention. Furthermore, Song's study (1998) showed that 45 per cent of the family caregivers (hereafter called caregivers) of those with persistent psychiatric disability were at risk of depression. Although her study focused on only one group of caregivers, the findings indicated that the emotional problems of caregivers of persons with long-term disabilities could be serious. However, whether caregivers experience more depressive symptoms than the general population remains untested both in Western countries and in Taiwan. Such a study is necessary for social service resource allocation.

In Taiwan, while there have also been studies on the correlates of depression of specific populations, as of yet no study has addressed this issue using a representative sample of the entire country. This study aimed at examining two research questions. First: Do family

<sup>1</sup> It is the only study of its kind so far in Taiwan. The other three most prevalent psychiatric diseases were phobia (14.3 per cent), alcoholism (13.8 per cent) and anxiety (8.5 per cent).

caregivers experience more depressive symptoms than the general population? This question addresses the direct effect of family caregiving on depression. The second question involves testing the interaction effect of family caregiving, that is: Would the correlates of depressive symptoms be different between the general population and family caregivers? Through a national face-to-face survey on a representative sample, this study was able to examine the issues as affecting both the general population and the caregivers of persons who need long-term care.

### Conceptual framework

Moos and Schaefer (1993) developed the Stress and Coping Process model to delineate the relationship between environmental systems, personal systems, life crisis and transition, cognitive appraisal and coping reaction, and health and wellbeing. Environmental systems include ongoing life stressors and social resources in important life domains, such as physical health, finances, relationships etc. The personal system is comprised of socio-demographic characteristics and a person's coping resources such as ego development, self-efficacy, optimism, a sense of coherence (comprehensibility, manageability and meaningfulness), cognitive styles (field orientation and information process), defence and coping style, and problem-solving abilities.

The model posits that life crises or transitions and the environmental and personal factors that affect them influence cognitive appraisal and coping responses, which in turn affect health and wellbeing. This is a transactional model and reciprocal feedback can occur at each stage. The appraisal process involves two stages; the primary appraisal refers to people's judgement about what is at stake in a stressful event, while the secondary appraisal concerns their beliefs about the viable options for coping. Moos and Schaefer (1993) categorised the coping processes into four types based on two dimensions: focus of coping (avoid or approach) and method of coping (cognitive or behavioural).

The model provided a theoretical basis for this study in selecting the potential correlates of depressive symptoms. The investigators specifically focused on comparing the relative contributions among life stress, coping and social support while controlling for key demographic variables.

This study also focused on the comparisons between the general population and family caregivers. From the normative point of view, family members supposedly and actually provide assistance and support to one another. However, in this study the definition of caregivers is someone who shares the responsibilities in looking after other family members with a chronic illness or disability. According to Biegel, Sales and

Schulz (1991), the content of caregiving in such situations is not very different from the usual tasks and activities rendered to family members. The difference is mainly that: (1) caregiving in this situation represents the increasing of extraordinary care that goes beyond the bounds of normal or usual care; and (2) it is likely to be unsymmetrical and involve roles that are unanticipated.

Family caregivers of people with chronic illness or disability tend to experience subjective burden and objective burden, and in turn enduring negative outcomes, including psychological wellbeing (Biegel et al., 1991; Lefley, 1996; Song, 1998; Song et al., 1997). Thus, caregivers who shoulder extraordinary care responsibilities may demonstrate more depressive symptomatology. In addition, being in such a demanding situation may alter individuals' resources, coping abilities, social supports etc. Therefore, the correlates of depressive symptomatology might be different between the general population and family caregivers.

### Previous empirical findings

#### General populations

*Life stress.* Most related studies have focused on a specific population. Chou and Chi (2001) studied depression among the elderly and found that life stress was a significant correlate. A study by Kalil, Born, Junz and Caudill (2001) on first-time welfare recipients supported previous findings that life stress was an important correlate of depressive symptoms, even more than social support ( $R^2 = 13\%$  versus  $4\%$ ). Aranda et al. (2001) also found that stress variables were the most powerful predictors of depressive symptoms for Mexican-Americans.

*Coping.* Moos and Schaefer (1993) reviewed the coping process and treatment outcome of depression. Their own study revealed that problem-focused coping was associated with a better treatment outcome, whereas emotional discharge coping was correlated with more severe depression, both in a one-year and a four-year follow-up. They also pointed out that such results are consistent with prior findings. However, problem-focused coping positively correlated with depressive symptoms when social support was low, as revealed in a study on battered women by Kocot and Goodman (2003). Furthermore, Garnefski, Legerstee, Kraaij, Kommer and Teerds (2002) found cognitive coping strategies were associated with a higher level of depressive symptoms for both adolescent and adult populations in The Netherlands.

Moos and Schaefer's (1993) longitudinal study showed that the higher use of avoidance coping at two years predicted a higher level of depression at ten years.

Studies on specific populations, such as Mexican-Americans (Aranda et al., 2001), stroke patients (Grattan, 2002) and minority women who were pregnant (Rudnicki, Graham, Habboushe & Ross, 2001) all found that avoidance coping was associated with more depressive symptoms. Moreover, Rudnicki et al.'s (2001) findings indicated that women who reported less social support satisfaction employed a greater amount of avoidance coping strategies, which was in turn associated with a higher level of depressed mood. It is noteworthy, however, that Rudnicki et al.'s model included only coping variables. Based on the above literature, it seems that the correlation between specific coping strategies and depressive symptoms is not yet conclusive. Kocot and Goodman (2003: 325), referring to Folkman (1984), argued that 'their use and relative efficacy are tied to an individual's perception of control, as well as the confluence of contextual factors that determine whether the external event can actually be changed'.

*Social support.* Three studies (Chi & Chou, 2001; Kalil et al., 2001; Kim, 2001) found that higher support satisfaction was associated with less depressive symptoms. Studies on the elderly showed a significant correlation between perceived social support and depressive symptoms (Hays, Steffens, Flint, Bosworth & George, 2001; Hybels, Blazer & Pieper, 2001; Lin et al., 1986; Oxman & Hull, 2001). However, Kocot and Goodman (2003) did not find a direct association between social support and depressive symptoms. Rather, social support moderated the problem-focused coping and depressive symptoms, as previously mentioned. Chou and Chi (2001) also found that social support could buffer the negative impact of life stressors on depression. Social support could act as a mediator between other variables and depressive symptoms. A study by Brissette, Scheier and Carver (2002) showed that college students who were more optimistic experienced increased social support, which in turn led to decreased depression. Shen and Takeuchi's study (2001) on Chinese Americans revealed that social support mediated the correlation between higher socio-economic status and lower level of depressive symptoms.

This topic has been examined in several studies in Taiwan. Cheng and Song's study (2000) of single parents found that life stress was positively correlated with depressive symptoms, and that the higher the score on satisfaction with social support, the lower were the depressive symptoms. However, social support and coping strategy variables were not significant. A study by Huang and Chiang (2001) of the general population further supported the association between satisfaction with social support and psychological wellbeing for people in rural areas. Lastly, Chuang and Yeh (2001) studied parents of premature infants and found a correlation between social support and depression.

Concerning the effects of demographic variables on depressive symptoms, Hybels et al. (2001) and Kim (2001) found significant gender differences in depressive symptoms, with women experiencing more symptoms. However, the results of Aranda et al. (2001) and Chi and Chou (2001) did not show any such differences. Both Kim (2001) and Chi and Chou's (2001) studies were on Asian populations. Huang and Chiang's (2001) study found gender differences in depressive symptoms only for the urban population. Chi and Chou (2001) and Huang and Chiang (2001) did not find the effect of the age variable to be significant. Lastly, the effect of marital status on depressive symptoms was supported by the studies of Hybels et al. (2001) and Chi and Chou (2001), with the unmarried being more depressed than the married.

### Family caregivers

Literature on the depressive symptoms of caregivers of people with long-term disabilities has usually focused on a specific population. Most studies examined the effect of social support. The studies of caregivers of individuals with Alzheimer's disease (Schulz & Williamson, 1991) and of people with mental illness (Song et al., 1997; Struening et al., 1995) indicated a significant association between perceived social support and depressive symptoms. In Taiwan, a study by Song (1998) showed that caregiver burden and social support were the two most important correlates of depressive symptoms when other variables were controlled for. Powers et al. (2002) studied caregivers of persons with Alzheimer's disease and found a positive association between *avoidance coping* and depressive symptoms.

Previous studies generally indicated that female caregivers reported more depressive symptoms than males (Gallagher, Rose, Rivera & Thompson, 1989; Pruchno & Resch, 1989; Schulz & Williamson, 1991; Song, 1998). However, some studies did not find any gender differences (Jones & Peter, 1992; Song et al., 1997). In Song's (1998) study, married caregivers reported less depressive symptoms than unmarried ones. In addition, age was not a significant correlate.

In sum, only a few studies have focused on the general population, and even fewer have focused on caregivers. Previous studies consistently showed the association between life events (stress) and depressive symptoms. Nevertheless, the effect of coping styles on depressive symptoms is still not conclusive. A few studies supported the positive association between avoidance coping and depressive symptoms. In general, most studies showed the significant effect of satisfaction with social support on depressive symptoms, including direct, mediating and moderating effects, with the last one being less evident. Previous studies showed inconsistent results concerning the gender differences in depressive symptoms, and age was not shown to be

significant. Lastly, it seems agreed upon that married people were less depressed than the unmarried.

### Research hypotheses

The continual presence of a person who needs long-term assistance could be a constant stressor; thus the hypothesis is that caregivers experience more depressive symptoms than the general population while controlling for demographic variables, life stress, coping style and social support. It is also hypothesised that life stress, coping style and social support would all correlate with depressive symptoms. However, their relative contribution may differ for the general population and caregivers, respectively.

### Method

This study used the data generated from the 'The Fourth Wave<sup>2</sup> Second Year Survey on Social Change' to examine the research questions (Chang & Fu, 2002). The survey is an integrated study; the investigator was part of the research team for this year. The cross-sectional survey targeted people aged 20 or above for the face-to-face interview.

### Subjects

The study subjects were selected using stratified proportional sampling. The Taiwan area was classified into ten levels based on developmental characteristics – newly developed towns, mountain towns, generic towns, rural areas, Taipei city, Kaoshiung city etc. The percentage of people aged 20 or above for each level was calculated and random sampling was conducted within each. The sample size totalled 1,979. The family caregiver category was further identified within the total sample. The items were deliberately designed for the differentiation of the two sub-samples. Family caregiving denotes the subjects who were involved in taking care of the daily life of a family member who filled any of the following four conditions: aged 65 years or above, had a long-term illness, had a physical disability or mental retardation, or was mentally ill. Caregivers accounted for 17.7 per cent ( $n = 351$ ) of the sample. The rest of the 1,628 subjects were labelled the 'general population'. Among the 351 caregivers, the overwhelming majority (338) cared for only one family member; the remainder cared for two family members with any of the four disabilities mentioned above. Thus, the investigators utilised family caregiving as a dichotomous status: family caregivers versus the general population.

<sup>2</sup> Each wave includes five years of studies. This is an on-going survey project conducted by the researchers at the Institute of Sociology, Academia Sinica, Taiwan.

### Instruments

As mentioned above, this survey was an interdisciplinary endeavour; there were 14 researchers involved. Therefore, each topic allowed only limited questions as indicators. Most of the measures were based on previous scales in the literature or items included in the previous waves of the survey. These measures were further modified and trimmed through group discussions and a pilot test.

### Dependent variable – depressive symptoms

This variable was measured by a 10-item short form of the CES-D, with items 9 and 10 being phrased in a positive way (I was happy; I enjoyed life) (General Accounting Office, 1999). Subjects were asked if they had experienced the situation or had had such feelings in the *last week*. The response categories included: (1) never, (2) seldom (only on one day), (3) sometimes (two to three days), (4) often or always (four days or more). A higher score indicated a greater level of depressive symptoms. Factor analysis performed on our data showed a two-factor structure within the ten items. Items 1 through 8 represented the first factor and items 9 and 10 represented the second. This type of factor structure reflected that negative feelings such as depressive symptoms were different from positive feelings. Thus, items 1 to 8 were retained to reflect depressive symptoms. The single factor explained 45.31 per cent of the variance, with a very good internal consistency ( $\alpha = 0.82$ ). Each item had high loading (0.55–0.75) on the factor.

### Independent variables

*Family caregiving* was used to divide the sample into two sub-samples: the general population (0), and the caregiver (1).

*Life stress* was tapped from seven aspects of life, including the interviewee's own health, financial situation, work, marriage, stressful life events of family members (e.g. health, finance, work or marriage), relations with family members and relations with others. These questions focusing on the most critical life events were developed by the first author, based on the items asked in the previous wave of the survey. The seven items each had three response categories to reflect the level of stress or distress: (1) no, (2) some stress or sometimes feels distressed, and (3) very stressful or feels distressed very often. Factor analysis yielded two factors, 'survival related stress' (4 items) and 'relational stress' (3 items), and explained 54.76 per cent of the variance. The first factor reflected stress from events related to the subjects' own financial situation, work and health, and that of the family member. These events might present threats to the individual's resources or

ability to survive. The factor loading of these four items ranged from 0.52 to 0.85. The 'relational stress' factor covering stress stemmed from interpersonal problems within the family, with others and within the marriage. The factor loadings of the three items were all satisfactory (range = 0.54–0.85). Given the number of items, the internal consistency ( $\alpha$ ) was acceptable, 0.68 and 0.62 respectively. The two factors had a positive correlation ( $r = 0.41$ ,  $p < 0.000$ ).

*Coping method* was measured by an 11-item scale which was adapted from the one (12 items) used by Cheng & Song (1998). Their scale resulted from the factor analysis of the stress coping scale developed by Bell (1977). The original Bell's scale contained 18 items with two types of coping: emotion centred and problem centred. In Cheng and Song's study (1998), factor analysis yielded a five-factor structure, mainly cognitive or problem coping; each factor had satisfactory reliability. The scale response category included: (1) never, (2) sometimes and (3) very often. We performed a factor analysis again in this study to examine its factor structure because of item modification. Two items were excluded from the analysis for two reasons: first, too many subjects answered 'never' (item 11 (took medicine), 95.6 per cent); and second, the factor loading was less than 0.4 in the initial factor analysis (item 5 – don't worry, things will be fixed in the end). The remaining items revealed a two-factor structure, with 41.36 per cent of the variance being explained. Each stress dimension included both cognitive and behavioural coping methods. The first factor, 'approach coping', included items such as 'try to view things from different angles', 'seek related information', 'take action immediately to solve problems', 'do physical activities', 'discuss with someone' and 'sleep or do leisure activities'. The factor loading of these items (range = 0.45–0.71) and internal consistency for this factor (6 items) were acceptable ( $\alpha = 0.67$ ). The second factor, named 'avoidance coping' (3 items), covered items such as 'eating, smoking or drinking to relieve tension', 'throwing things to relieve emotions' and 'psychologically prepare for the worst'. The factor loading of each item was 0.71, 0.68 and 0.57, respectively. The  $\alpha$  level (0.38) for 'avoidance coping' was not satisfactory. Thus, this factor was not included in the following analyses to avoid the potential threat to the validity of this study.

Three scales were used to measure *social support*: instrumental support, emotional support and satisfaction with support. These scales were developed for this study. The time frame was 'during the last year' and the sources of support included parents, adult children, siblings, relatives and friends. *Instrumental support* was tapped by asking if the subjects received care while sick, home care assistance, suggestions on important matters, periodically got financial support, got financial

support but not periodically, child care and whether they received help on business and money from each source (30 items). These were yes (1) or no (0) questions. The investigators counted the 'yes' answer to reflect the level of instrumental support. Seven items were created to measure *emotional support*; subjects were asked how often they confided in others, took a walk or went to the church or temple with people in the support network, including parent, sons, daughters, brothers, sisters, relatives and friends. Each item had four response categories: never (0), seldom (1), sometimes (2) or very often (3). Five items were designed as indicators of *satisfaction with support*. Each subject was asked how they felt about the concern and care provided by parents, adult children, siblings, relatives and friends. The item response had four categories: very dissatisfied (1), dissatisfied (2), satisfied (3) or very satisfied (4). Since there were many non-applicable answers, the mean score of the five items was computed to reflect the level of satisfaction. Since the social support from each source might not be correlated, the internal consistency of these three scales was not tested.

#### Control variables

*Demographic variables* included gender (0 = female, 1 = male), actual age and marital status (married or cohabiting; not married; divorced, widowed or separated).

#### Data analysis

To examine the factorial validity, factor analysis was conducted on each scale. Principal component methods of extraction and varimax rotation were used. The number of factors was determined using eigenvalue  $\geq 1$  and factor loading  $\geq 0.4$ . Pearson correlation, t-test and one-way ANOVA were conducted to explore the bivariate relationships. Regression analyses were conducted to answer the two research questions. First, the hierarchical method of entry was used to test the direct effect of family caregiving on depression while controlling for other variables. Second, the investigators performed separate regression analyses on the general population and caregiver samples to compare the differences in the significant correlates of depressive symptoms.

## Results

### Sample characteristics

Among the subjects, 50.5 per cent ( $n = 1000$ ) were men. The mean age was 45.48 years ( $sd = 15.87$ ), with a range of 21 to 93 years. With regard to marital status, 70.2 per cent ( $n = 1390$ ) were married or cohabiting, 354 (17.9 per cent) were not married and 11.9 per cent were divorced, widowed or separated.

This part of our analysis was performed for the entire sample. Women experienced more depressive symptoms than men (mean = 12.33 versus 11.49;  $t = -4.31$ ,  $p < 0.001$ ). One-way ANOVA revealed that marital status was a significant correlate ( $p < 0.001$ ). Scheffe's test further showed significant differences ( $p < 0.01$ ) on depressive symptoms between those who were divorced, widowed or separated (mean = 13.49) and those who were unmarried (mean = 12.34) or married (mean = 11.53). The difference between those who were unmarried and married was also significant ( $p < 0.01$ ).

'Survival-related stress' and 'relational stress' were significantly ( $p < 0.001$ ) and positively correlated with depressive symptoms ( $r = 0.46$  and  $0.37$ , respectively). The two coping factors were also significant ( $p < 0.001$ ). Subjects who used more 'approach coping' tended to have lower levels of depressive symptoms ( $r = -0.10$ ). Both emotional support and satisfaction with support had negative correlations with the dependent variable ( $r = -0.11$  and  $0.12$ ). Age and instrumental support were not significant ( $p > 0.05$ ). These results showed that life stress had the strongest correlation with depressive symptoms at bivariate analysis. Caregivers had significantly more depressive symptoms than the general population (mean = 12.44 versus 11.79;  $t = -2.30$ ,  $p < 0.05$ ).

### Regression analyses

The overly skewed distribution of the dependent variable (skewness  $> 0.5$ ; Monnett, Sullivan & DeJong, 1994) (general = 1.43, caregiver = 1.16) led to log10 transformation computed for depressive symptoms. The results were more in line with what we expected after the transformation had been carried out (general = 0.775, caregiver = 0.597). In the analyses, two dummy variables were created for the marital status variable, i.e. unmarried and divorced (including widowed and separated). Subjects who were married or cohabiting were treated as the reference group.

### The direct effect of family caregiving

The demographic variables alone explained 3.3 per cent of the variance ( $p < 0.05$ ). Adding life stress, coping style and social support variables caused a significant increase (26.3 per cent) of the explained variance. However, the family caregiving variable entered in the last block did not further increase the explained variance ( $p > 0.05$ ). Thus, family caregivers experienced more depressive symptoms than the general population, whereas the direct effect disappeared when other variables were controlled (see Table 1). For the entire sample, life stress, aging and being unmarried had greater effects on depressive symptoms based on the standardised regression coefficients (beta).

Table 1. Test for the direct effect of family caregiving on depressive symptoms (N = 1900).<sup>a</sup>

Predictors	B <sup>b</sup>	SE B	$\beta^c$
Block 1			
Gender (0 = F, 1 = M)	-0.024	0.006	-0.086***
Age	0.001	0.000	0.138***
Marital status			
Unmarried (1)	0.050	0.008	0.134***
Divorced etc. (1)	0.021	0.010	0.048*
Block 2			
Survival-related stress	0.027	0.002	0.370***
Relational stress	0.032	0.003	0.219***
Approach coping	-0.003	0.001	-0.058**
Satisfied with support	-0.002	0.001	-0.041
Instrumental support	0.002	0.001	0.046*
Emotional support	-0.002	0.001	-0.055*
Block 3			
Caregiving (0 = no, 1 = yes)	0.006	0.007	0.017
Adjusted R <sup>2</sup> = 29.2%; F <sub>(11,1888)</sub> = 72.174***			

Note: a: Four outliers were excluded; b: Unstandardised regression coefficient; c: Standardised regression coefficient. \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$ . Block 1 accounted for 3.3% of the variance; block 2 caused a 26.3% R<sup>2</sup> increment; block 3 did not cause any R<sup>2</sup> increment.

### The interaction effect of family caregiving

*General population.* The entire model explained 28.1 per cent of the variance in depressive symptoms (see Table 2). Emotional support almost reached a level of significance ( $p = 0.057$ ). Based on the beta, 'survival-related stress' (0.37) was the most important correlate, with 'relational stress' (0.20) being the second in importance. Coping and support variables were less important. In contrast with the above analysis, age and instrumental support were significant. The level of depressive symptoms increased with aging. It is interesting to note that instrumental support had a positive correlation with depressive symptoms. Since the referenced time frame for instrumental support (during the last year) was longer than the depressive symptoms (during the last week), it is reasonable to hypothesise that the former happened before the latter. Thus, it might indicate that some of the instrumental supports were not desirable for the subjects, which in turn induced depressive symptoms. The subjects who were not married or divorced etc. experienced more depressive symptoms than married people.

The investigators also examined the interaction effect between life stress and coping style and social support. To avoid serious multicollinearity, only one interaction term was included in the model for each time. The results showed that only two interaction terms reached a significant level, 'survival-related stress x approach coping' ( $p < 0.01$ ) and 'survival-related stress x satisfaction with support' ( $p < 0.05$ ). The R<sup>2</sup> increment caused by the entry of each interaction term was 0.4 per cent for the former and 0.2 per cent for the

Table 2. Results of interaction effect of family caregiving on depressive symptoms.

Predictors	General population (n = 1557 <sup>a</sup> )			Caregivers (n = 344)		
	B	SE B	$\beta$	B	SE B	$\beta$
<b>Block 1</b>						
Gender (0 = F, 1 = M)	-0.029	0.006	-0.10***	-0.004	0.014	-0.01
Age	0.001	0.000	0.09***	0.003	0.001	0.34***
Marital status						
Unmarried (1)	<b>0.044</b>	0.009	0.12***	<b>0.078</b>	0.022	0.18***
Divorced etc. (1)	0.022	0.010	0.05*	0.022	0.023	0.05
<b>Block 2</b>						
Survival-related stress	0.027	0.002	0.37***	0.029	0.004	0.38***
Relational stress	<b>0.028</b>	0.004	0.20***	<b>0.042</b>	0.007	0.30***
Approach coping	-0.003	0.001	-0.07***	-0.0002	0.003	-0.003
Satisfied with support	-0.003	0.001	-0.06*	0.003	0.003	0.05
Instrumental support	0.002	0.001	0.06*	-0.001	0.002	-0.02
Emotional support	-0.002	0.001	-0.05	0.002	0.002	-0.05
Adjusted R <sup>2</sup> , F <sub>(df1,df2)</sub>	0.281, 61.91 <sub>(10,1546)</sub> ***			0.337, 18.43 <sub>(10,333)</sub> ***		

Note: a: Three outliers were excluded. \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$ . For the general population, block 1 accounted for 3.5% of the variance; block 2 caused a 25.1% R<sup>2</sup> increment. For the caregiver population, block 1 accounted for 5.4% of the variance; block 2 caused a 30.2% R<sup>2</sup> increment.

latter. This result indicated that 'approach coping' and 'satisfaction with support' could buffer the negative impact of survival-related stress on depressive symptoms.

*Caregiver sample.* Demographic variables explained 5.4 per cent of the variance of the depressive symptoms. The second block induced a significant increase of 30.2 per cent of the explained variance ( $F = 26.2, p = 0.000$ ). The adjusted R<sup>2</sup> for the entire model was 33.7 per cent. The significant correlates included age, unmarried, survival-related stress and relational stress. Among them, the most important was survival-related stress (beta = 0.38), followed by age (0.34) and relational stress (0.30). 'Approach coping' was not a significant correlate of depressive symptoms, neither were any of the social support variables.

### Comparisons

There are similarities and differences in the findings between the two sub-samples. The similarities include: (1) 'Survival-related stress' and 'relational stress' were found to be important correlates of depressive symptoms for both samples; (2) age and being unmarried were also significant correlates. The differences were seen as follows:

- The number of correlates for the caregiver sample was less than the one for the general population (4 versus 8).
- Age was one of the most important variables for the caregiver sample, whereas it was less so for the general population.
- Gender was significant for the general sample, but not for the caregiver sample.

- After controlling for other variables, coping and the social support variables were not significant for the caregiver sample; however, approach coping, satisfaction with support and instrumental support were significant for the general sample. Thus, for caregivers it was life stress that mattered for depressive symptoms.
- By comparing the un-standardised regression coefficients, unmarried and relational stress had greater effects for the caregiver sample than for the general population ( $B = 0.078$  versus 0.044;  $B = 0.042$  versus 0.028) (see Table 2).

### Discussions and implications

#### The interaction effect of family caregiving

While considering other factors simultaneously, being a family caregiver did not contribute directly to depressive symptoms. Its impact was an interactive one. Age, marital status, life stress, social support and coping influence depressive symptoms differently for family caregivers than for the general population. When assessing for depressive symptoms in caregivers, particular attention should be given to individuals who are older, unmarried and experiencing high life stress.

#### Differences on demographic correlates between the general populations and caregivers

Generally speaking, gender was not a significant correlate for caregivers. This finding differed from a previous Taiwanese study (Song, 1998). The significance of gender for the general population confirmed the findings of Hybels et al. (2001) and Kim (2001), but differed from

the findings of others (Aranda et al., 2001; Chi & Chou, 2001). The significance of age found in this study was very different from previous findings. These discrepancies may have been because of sample difference. This study covered a wider age range, while the other studies focused only on a specific population, the elderly (see e.g. Chi & Chou, 2001; Huang & Chiang, 2001). Furthermore, this study covered a wider range of caregivers, whereas Song's study (1998) included only caregivers of people with psychiatric disability. The result implied that older caregivers require more attention and help with their emotional status. It is possible that older caregivers worry about future arrangements for their care recipients in light of their own ageing and the consequences that the ageing process will have on their ability to provide adequate care.

### Relational stress mattered especially for caregivers

The findings of this study show that the level of life stress needs to be taken into account when 'depressive symptoms' are in question. For both sub-samples, survival-related stress was the most important correlate. Negative life events related to work, health and finance may bring threats to the fulfilment of people's basic needs and trigger detrimental emotions. Thus, crisis intervention and tangible supports are the top priorities when these events are encountered.

Relational stress was a more important predictor for the caregivers' emotional status than for the general population. Care responsibility itself could bring enormous stress to the caregivers, and stress from other life events could make them feel even more burdened. The finding implies that how the caregivers appraise the life events is a key factor. Helping professionals should assess caregivers' levels of stress, especially relational stress. Support groups for caregivers might include topics in how to maintain or manage relations with spouses, other family members and friends.

### The effect of coping style

It was found that using approach coping could directly help the general population in their emotional status. It could also buffer the negative impact of life stress on depressive symptoms. Nevertheless, approach coping was not a significant tool of reducing stress for the caregivers. This finding could be because the problems that caregivers encountered are long standing (e.g. patients' physical conditions, patients' dismal love life). Approach coping may be ineffective in making the situation any better. As Moos and Schaefer (1993: 251) maintained: 'approach coping processes should be most effective in situations that are appraised as changeable and controllable. Avoidance coping process would be most effective in situations that cannot be altered'.

### The effect of social support

The finding concerning the direct effect and buffering effect of social support confirmed the review by Thoits (1995). In stark contrast to the previous finding (Song, 1998), this study did not find a significant effect of social support for caregivers. The reasons for such a discrepancy might include:

- 1) Sample difference – this study covered a wider range of caregivers (four groups).
- 2) Model difference – coping and stress variables were not part of the model in the previous study.
- 3) Measurement difference – social support was measured differently in each study.

Thus, the impact of social support on caregivers' emotional status requires further examination, particularly the causal relationship between social support, life stress and coping style. Social support might have an indirect effect on depressive symptoms through its effect on life stress and coping style based on the model by Moos and Schaefer (1993).

### Implications for mental health practice

This study has several practice implications. By enriching personal and social resources, people may feel less stressed when negative life events occur. Community education could address this issue by informing caregivers about the most helpful approaches to dealing with negative situations.

For the *caregiver sample*, special attention should be given to the older individuals and people who are unmarried through screening their emotional status. The effect of life stress on depressive symptoms implies that one's cognitive appraisal of a life event is important. Support groups for caregivers might focus on healthier, more functional ways to view the various life events. Brissette et al. (2002) found that optimism is associated with a smaller increase in stress and depression. Greater use of positive reinterpretation and growth contributed to the superior adjustment that optimists experienced. Caregivers need to be empowered in order to increase their self-efficacy and sense of coherence, which are important personal resources for life events encountered, expected or unexpected.

### Limitations of the study

As this study was part of a cross-sectional survey, it had limitations. First, the findings of the study were suggestive instead of conclusive. Second, the survey covered a wide range of issues related to family; thus only a limited number of questions on mental health could be included, which may have compromised the psychometric properties of the measurement. However, the analyses

demonstrated the factorial validity and reliability of most measures. Third, the exclusion of 'avoidance coping' assures the measurement quality in this study; however, at the expense of conceptual integrity. The measurement for avoidance coping needs to be improved in future studies, thus facilitating comparisons of the effects between different coping styles. Fourth, this study was not able to disentangle the causal process between social support, life stress, coping style and depressive symptoms. A longitudinal study is needed in Taiwan to help us to understand fully the associations between social support, life stress and coping style and how they impact on human beings' mental state.

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