Social Support, Health Service Use and Mental Health Among Caregivers of the Elderly in Rural China

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Abstract This cross-sectional study was designed to investigate the status of social support, health service use and mental health among caregivers for the elderly in a Chinese rural community. With randomized stratified sampling method, 199 caregivers providing long-term care for the elderly recruited from a Chinese rural community responded to the survey and were administered the questionnaire, measuring the caregiving outcome for the elderly. The social support was assessed with the social support scale (SSS) and social network scale (SNS). Health service utilization was assessed with the questionnaire on health service use (HSU). Depression was evaluated with the Center for Epidemiological Studies—Depression Scale (CES-D). Most caregivers are elder's spouse (39.7%), son (26.1%) and daughter-in-law (18.1%). Three common health service used by the caregivers are visiting physician (68.0%), help from relatives or friends (43.9%) and seeking help of herbal doctors or traditional healers (34.0%). Between caregivers for healthy and non-healthy elders, there was significant difference of depression scale score ($t=$ 3.195, $p<0.01$), not of SSS and SNS scale scores ($p>0.05$). The score of depression

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scale are associated with caregivers' age (β=0.260) and income (β=−0.231), care-recipients' gender (β=0.187) and age (β=0.800), caring time (β=0.138) and the total SNS score (β=−0.194) (all $p<0.05$). The findings suggest, in Chinese rural area, family provides main source for caregiving to the elderly, with spouse and sons playing central roles. Most often elderly caregivers utilize medical resources. Depression during the process of caregiving is associated with caregivers and care-recipients' background characteristics, with potential mediator effect of social support. It is implied that social support may be important when providing mental health service to the elderly caregivers in Chinese rural areas.

Introduction

With population ageing in China, there is an increasing demand for care,, especially long-term care, for old adults. Currently, family members are still the major source of caregiving in China, especially in rural areas (Zhou 2000). The process of caregiving has generated some potential difficulties, including burdens on physical and mental health (He 2002). For example, the spouse of the care-recipient is also becoming frail with age, while the younger generation, like sons and daughters, may be fatigued after returning from their own work, and providing care for their own children. Prior studies on dementia caregiving show great family burden during the long-term care (Clyburn et al. 2000; Haley et al. 1987; Vitaliano et al. 1991). Social support and social network may play an important role in mediating the outcome of caregiving. Studies suggest the greater social support, the less stress the caregiver may have. (Baillie et al. 1988; Chen and Greenberg 2004; Thompson et al. 1993). Appropriate strategy including mental health counseling and social work support may improve the mental well-being of the caregivers. The caregivers who provide long-term care for the elderly in rural areas of China are an under-observed and underserved population. The underestimate of their social support and mental health status would create barriers to the development of health service system that benefits the older care-recipients and their caregivers. Therefore, this study was conducted in a Chinese rural community to depict the profiles of social support, health service use and mental health status among caregivers for the elderly. Depression is the most common reported mental problem among caregivers of individuals with dementia and other mental illness (Yip 2004), e.g., schizophrenia, this study was also designed to explore the relationship between social support and depression during the process of caregiving. Led by Pearlin's model (Pearlin et al. 1990), we hypothesized that the outcome of caregiving is influenced by background characteristics, and would be mediated by social support (theoretical framework briefly illustrated as Fig. 1). We anticipated the results of this study would elucidate the effect of social support on depression among caregivers for the elderly, and thus provide scientific data for elderly caregiving outreach program in Chinese rural area. Ultimately, the findings of this study would promote the development of mental health service network between the inner cities and remote areas in China.
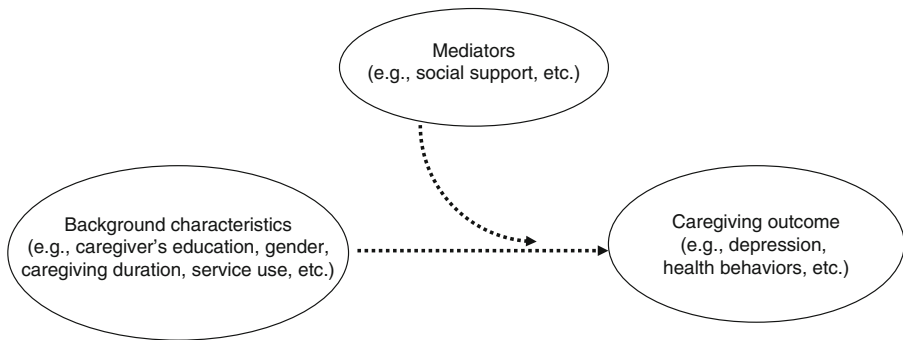
Fig. 1 Schematic illustration of the theoretical framework

Subjects and Methods

This study was conducted with the approval of Institutional Review Board of Nanchang University. All subjects gave their written consent form prior to participation in the study.

1. Description of studying field:

This study was conducted in Sanxianling Countryside located in the northeast of Jiangxi Province in China. Sanxianling Countryside is a rural area. covers around 144 square yards and includes 7 villages and 6 farms. The average annual income is RMB 1,483 yuan per person with a population of 18,606 persons. According to census data, 12,271 persons are registered as rural residents and there are 1,113 elderly aged 60 or above. Generally, Sanxianling Countryside is the epitome of Chinese rural area with slow economic development and relatively scarce material supply. The perception of "happy life" is "eating well and dressing warm". The lifestyle in this area is simple, unsophisticated and residents share the belief that the environment is safe and everyone in the community is credible and reliable. They never lock the door even when leaving the house. There is no sign of guarding against theft. People in this area are hospitable and would readily invite a stranger to enjoy meals with them. Countryside residents mostly have vegetables from their own farmland, and only have meat once or twice every week. Residents in this area do not often travel outside the village.

2. Subjects

The census data was obtained from the registry at local housing department of the police station. The elderly residents were stratified with age into 4 categories: 60–64 ($n=69$), 65–69 ($n=65$), 70–74 ($n=32$), and above 75 ($n=44$). According to our previous field survey experience, with stratified randomized sampling method, 210 elderly were identified simultaneously according to the ratio of each age range, the ratio between men and women, and the ratio of elderly in each village of a certain age range to the general population of the same age range. Then, a set of questionnaire was administered to the caregivers of these 210 elderly and 199 subjects responded to the survey. The response rate is 94.8%.

3. Questionnaire administration

This report used data from the 199 caregivers taking long-term care of the elderly recruited to a cross-sectional survey on the outcome of caregiving for the elderly conducted by Nanchang University. The questionnaire initially developed for dementia caregiving outcome was validated in a study among Chinese-American conducted in Great Boston area by Harvard Medical School. After cultural adaptation and pilot testing among rural residents (data pending publication), this set of questionnaires was administered to all research participants. Prior to conducting the study, nine bachelor's-level interviewers were trained on each component of the assessment battery. During the training period, inter-rater reliability was established and exceeded an intraclass correlation (ICC) of 0.85 on each instrument. Interviewers were monitored throughout the study to ensure that they followed interview procedures and administered each study instrument correctly.

For the purpose of this report, the questionnaire reported in this study includes Social Support Scale (SSS), Social Network Scale (SNS), Questionnaire on Health Service Use (HSU), and Center for Epidemiological Scale—Depression Scale (CES-D).

  3.1 Social Support Scale (SSS): The scale consists of the response to 6 statements, including:

  1) When I feel lonely there are several people I can talk to;
  2) I hardly ever meet or talk with family or friends;
  3) If I were too sick to do my daily chores, I could easily find someone to help me;
  4) When I need suggestions on how to deal with a personal problem, I know someone I can turn to;
  5) There is nearly no one whose advice I really trust;
  6) If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment when I was gone.

The disagreements to statement 1, 3, 4 will be scored as 1 (definitely false) or 2 (probably false), and the agreements were scored as 3 (probably true) or 4 (definitely true). For statement 2, 5, 6, agreement was scored as 1 (definitely true) or 2 (probably true), and disagreement was scored as 3 (probably false) or 4 (definitely false). The total SSS score was the total score of each response to each statement. The lower the score, the less the social support.

  3.2 Social Network Scale (SNS): The scale consists of 11 items regarding the number of relatives and friends, frequency of contacting friends and relatives, and help-seeking frequency. The score of items related to friends and relatives was scaled from 0 to 5, and help-seeking frequency was rated from 1 to 4. The higher the score, the greater the social support caregiver was receiving. The total SNS score was the total of each item score.

  3.3 Questionnaire on Health Service Use (HSU): The questionnaire was composed of four dimensions: service utilization (yes or no), frequency (how often), objective (for whom), and usefulness (how helpful). Service utilization was rated from 0 to 2: 0 = never used service; 1 = used service; 2 = never used service, but necessary. Frequency was rated from 0 to 5: 0 = everyday, or 5–7 times per week; 1 = once to 5 times per week; 2 = once

per week; 3 = more than once per month, less than once per week; 4 = once per month; 5 = less than once per month. The purpose of service utilization was rated from 1 to 3; 1 = for the elderly; 2 = for the self of caregiver; 3 = for both. The usefulness was scored from 1 to 3; 1 = not useful; 2 = somewhat useful; 3 = very useful.

3.4 Center for Epidemiological Studies—Depression Scale (CES-D): CES-D consists of 20 items and the score of each item ranged from 0 to 3. The total CES-D score was the total of each item score. The higher the score, the more serious the depression.

4. Statistical analysis

SPSS 11.0 was used for statistical analysis. Caregivers were divided into two groups: caregivers providing care for healthy old adults, and those taking care of the elderly with physical conditions. Frequency was calculated for categorical variables, like gender distribution, relationship between caregiver and care-recipient. The frequency of response (true or false) to each SSS statements was also calculated. For continuous variables, e.g., the total scores of SSS, SNS, and CES-D scales, descriptive analysis was used to explore median, mean, standard deviation, 95% confidence interval (CI) of mean. Independent-sample t test was deployed to compare the differences of age, caring time, the scores of SSS, SNS, and CES-D between caregivers of two groups. Group differences of gender distribution and health service utilization were examined with χ^2 test.

The relationship between depression scale score and background characteristics and social support was analyzed in two steps: Step 1, background characteristics of caregiver and care-recipient were included in the stepwise regression analysis, and factors significantly correlated with depression was extracted and entered into the second step analysis (model 1). Step 2, stepwise regression analysis was conducted including the total scores of SSS and SNS and the factors extracted from step 1 (model 2). Statistical significance is defined as $\alpha \leq 0.05$ (2-sided).

Results

1. Demographic and background characteristics of research participants

The demographic characteristics of 199 caregivers (age = 52.6±15.8 years; 111 women, 88 men) for the elderly were summarized in Table 1. Independent-sample t test showed that caregivers' age differed significantly between two groups ($t=-2.47$, $p<0.05$) and the age of cared recipients did not. ($t=-0.289$, $p>0.05$). χ^2 test found no significant difference in the gender distribution of the elderly and their caregivers between two groups ($\chi^2=0.001$, $p>0.05$; $\chi^2=0.035$, $p>0.05$).

In the studied area, the elderly (age = 69.9±6.3 years; 65 healthy old adults, 134 old adults with some physical conditions) often receives long-term caregiving from spouse (79/199, 39.7%), sons (52/199, 26.1%) and daughters-in-law (36/199, 18.1%). Most caregivers live together with the elderly care recipients (144/199, 75.3%). They usually stay in the single-family house (185/199, 93.9%). Most caregivers farm (106/199, 58.2%) or work in the home (51/199, 28.6%). Most

Table 1 Demographic characteristics of *caregivers (CG) and the elder care-re*cipients (CR) in a Chinese rural area

| Characteristics	HCR group (*n*=65)		NHCR group (*n*=134)	
	CR	CG	CR	CG
Age (mean ± SD, years)	69.7±6.8	48.7±15.2	70.0±6.1	54.5±15.7
Gender				
Female (n, %)	33 (50.8)	36 (55.4)	71 (53.0)	75 (56.0)
Male (n, %)	31 (47.7)	28 (43.1)	63 (47.0)	59 (44.0)
Missing data	1 (1.5)	1 (1.5)		
CG-CR relationship				
Spouse		17 (26.2)		62 (46.3)
Son & Daughter-in-law		34 (52.3)		54 (40.3)
Daughter& Son-in-law		6 (9.2)		5 (3.7)
Sibling		2 (3.1)		–
Other relatives		6 (9.2)		13 (9.7)
Residence (single-family house, n (%))		61 (93.8)		124 (92.5)
Education (years)				
Illiterate		20 (30.8)		66 (49.3)
1–5 years		22 (33.8)		44 (32.7)
6–9 years		13 (20.0)		12 (9.0)
9–12 years		6 (9.2)		8 (6.0)
missing		4 (6.2)		4 (3.0)
Income				
I can't make ends meet		11 (16.9)		41 (30.6)
I have just enough, no more		23 (35.4)		52 (38.8)
I have enough, with a little extra sometimes		24 (36.9)		30 (22.4)
I always have money left over		3 (4.6)		7 (5.2)
missing		4 (6.2)		4 (3.0)
Marital status				
Married		57 (87.7)		123 (91.8)
Widowed		5 (7.7)		0
Separated		1 (1.5)		8 (6.0)
Unmarried		2 (3.1)		3 (2.2)
CG living with CR (yes, n (%))		45 (69.2)		104 (77.6)
Caring time (mean ± SD, hr/week)		20.9±36.1		30.3±43.8

HCR healthy care-recipient, *NHCR* non-healthy care-recipient

caregiver received no or less than 5 years of schooling (146/191, 71.2%). Around 66.5% (127/191) of the caregivers has low income and no bank savings. There were no significant differences of caregivers' residence (χ^2=3.290, p>0.05), marital status (χ^2=2.464, p>0.05), occupation (χ^2=8.759, p>0.05), and caring time (t=−1.459, p>0.05), between two groups.

2. Health service use, social support and depression assessment

As shown in Fig. 2, the most commonly used health service is visiting a physician (SU3) (134/197, 68.0%), followed by turning to friends who can provide additional caregiving (SU18) (86/196, 43.9%) and seeking help from herbal doctors or traditional healers (SU16) (67/197, 34.0%). Table 2 summarized the utilization of these three common services among caregivers for the elderly. As shown in Table 2, most caregivers (109/136, 80.1%) do not see doctor quite often (once or less than once per month). Around half visit physicians (62/136, 45.6%) mostly for the elderly, and more than half (83/136, 61.0%) think it very helpful. Between two groups, only the portion of caregivers utilizing herbal doctors and traditional healers was significantly different (χ^2=6.642, p<0.05). The caregivers taking of the non-healthy old adults showed greater tendency to seek help from traditional healers. The utilization of other services did not differ significantly between two groups (p>0.05).

The scores of SSS, SNS, and CES-D were also summarized in Table 3. The frequency of response to each statement of SSS is summarized in Table 4. There were no significant differences of SSS (t=0.627, p>0.05) and SNS (t=1.955, p> 0.05) scores between two groups. The caregivers taking care of non-healthy elderly scored higher with depression scale than caregivers providing care for healthy old

■ yes   □ no, but service is needed   ⊟ no, service is not needed   ▨ N/A
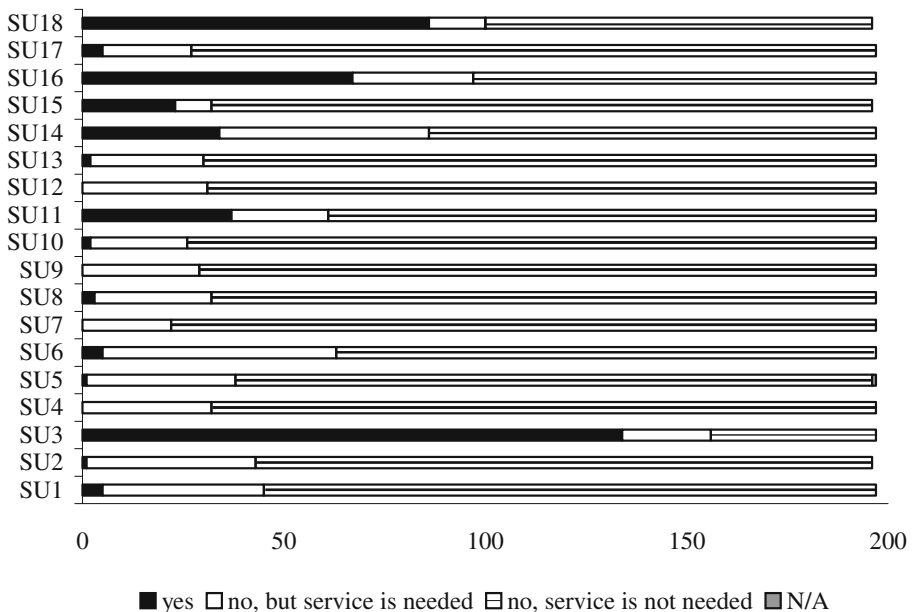
Fig. 2 The utilization of health service among elderly caregivers in a rural Chinese community. Note: SU1 = adult day care / social day care; SU2 = home nursing / visiting nurse; SU3 = visiting physician; SU4 = home health aid; SU5 = paid companion, sitter; SU6 = environmental / safety devices / housing improvement; SU7 = housekeeper / homemaker; SU8 = respite; SU9 = social worker; SU10 = home delivered meals; SU11 = transportation; SU12 = mental health counseling; SU13 = legal counseling; SU14 = financial counseling; SU15 = psychic healing, or fortune telling; SU16 = herbal doctors, traditional healers; SU17 = support groups; SU18 = relatives or friends

Table 2 The utilization of three commonly used health service among caregivers for the elderly in a rural Chinese community

	Use frequency (%)						For whom (%)			How helpful (%)		
	0	1	2	3	4	5	CR	CG	both	1	2	3
Visiting doctor	.7	2.9	4.4	11.8	8.1	72.1	45.6	19.9	34.5	1.5	37.5	61.0
Seeking help from friends	2.5	6.3	1.3	5.1	3.8	81.0	58.2	5.1	36.7	1.2	45.8	53.0
Seeing practitioner of Chinese medicine	0	1.5	4.4	7.4	8.8	77.9	38.2	33.8	27.9	2.9	51.5	45.6

Frequency: 0 = daily; 5–7 days per week; 1 = more than once a week, less than 5 days per week, 2 = once a week; 3 = more than once a month, but less than once a week; 4 = once a month; 5 = less than once a month

How helpful: 1 = not at all helpful; 2 = somewhat helpful; 3 = very helpful

CR care-recipient, CG caregiver

adults ($t=3.195$, $p<0.01$). Pearson's correlation analysis found that there was a significant positive relationship between SSS and SNS scores ($r=0.445$, $p<0.001$), suggesting the consistency of SSS and SNS scales in the assessment of social support. Pearson's correlation analysis also showed significant negative relationship between CES-D and SSS scores ($r=-0.254$, $p=0.001$), and between CES-D and SNS scores ($r=-0.452$, $p<0.001$). The results suggest the severity of depression decreased with the strengthening of social support.

Table 3 The frequency of response to each statement in social support scale

Statements	Frequency, N (%)				
	Score = 1	Score = 2	Score = 3	Score = 4	N/A
When I feel lonely there are several people I can talk to;	56 (28.3)	36 (18.2)	39 (19.7)	66 (33.3)	1 (0.5)
I hardly ever meet or talk with family or friends;	55 (27.8)	51 (25.8)	30 (15.2)	61 (30.8)	1 (0.5)
If I were too sick to do my daily chores, I could easily find someone to help me;	49 (24.7)	24 (12.1)	36 (18.2)	87 (43.9)	2 (1.0)
When I need suggestions on how to deal with a personal problem, I know someone I can turn to;	29 (14.6)	20 (10.1)	55 (27.8)	89 (44.9)	5 (2.5)
There is nearly no one whose advice I really trust;	34 (17.2)	53 (26.8)	52 (26.3)	50 (25.3)	9 (4.5)
If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment when I was gone.	57 (28.8)	32 (16.2)	22 (11.1)	84 (42.4)	3 (1.5)

Score = 1, definite disagreement to statement 1, 3, 4; definite agreement to statement 2, 5, 6

Score = 2, probable disagreement to statement 1, 3, 4; probable agreement to statement 2, 5, 6

Score = 3, probable agreement to statement 1, 3, 4; probable disagreement to statement 2, 5, 6

Score = 4, definite agreement to statement 1, 3, 4; definite disagreement to statement 2, 5, 6

3. Relationship between depression and background of caregivers and care-
   recipients and social support

As shown in Table 4, stepwise regression analysis showed that background characteristics, including caregivers' age, income and residence, care-recipients' gender and age, and caring time were significantly associated with the score of depression scale (model 1 in Table 5). Taking the effect of social support into consideration, stepwise regression analysis indicated that there was a significant relationship between the score of depression scale and caregivers' age and income, care-recipients' gender and age, caring time and SNS total score (model 2 in Table 5).

Discussion

We conducted this study to investigate the effect of social support on depression of caregivers for the elderly in a rural Chinese community. Preliminarily, we have achieved several findings: 1) Most caregiver tend to use medical resources (physicians and traditional healers) during the caregiving for the elderly; 2) The depression score differed significantly between caregivers of healthy and non-healthy old adults; 3) The severity of depressive expression is related to background of caregiving, like caregiver's income, age, and the time spent on caregiving; and 4) Social support may have an influence on the outcome of depression during the process of caregiving.

1. Caregiving source and health service utilization in the rural community

We found that most of the caregivers of the elderly are their spouse and children in the rural community in this study. Sons and daughters-in-law are more than

Table 4 Group comparison of caregivers' scores of social support scale (SSS), social network scale (SNS) and depression scale (CES-D)

	Scale Score		HCR – NHCR comparison	
	HCR group (*n*=65)	NHCR group (*n*=134)	t	p
SSS				
Median	16.0	17.0		
Mean (SD)	16.6 (3.8)	16.5 (3.6)	.627	.531
95% CI	15.6–17.6	15.8–17.2		
SNS				
Median	26.0	23.0		
Mean (SD)	26.7 (9.3)	23.7 (9.8)	1.955	.052
95% CI	24.2–29.3	21.8–25.6		
CES-D				
Median	15.0	20.0		
Mean (SD)	15.6 (8.1)	19.7 (8.2)	−3.195	.002
95% CI	13.5–17.8	18.2–21.3		

HCR healthy care-recipient, *NHCR* non-healthy care-recipient

Table 5 Models of relationship between depression and background characteristics (caregiver and care-recipient) and social support

	Unstandardized coefficients		Standardized coefficients	t	Significance (P value)
	B	SE	Beta		
Model 1: background characteristics					
CG age	.127	.044	.333	2.895	.004
CG income	−2.920	.668	−.313	−4.370	.000
CG residence	3.670	1.756	.193	2.090	.038
CR gender	1.956	1.119	.146	1.747	.083
CR age	.140	.045	.466	3.148	.002
Caring time	.06	.015	.151	4.061	.000
Model 2: background + mediators					
CG age	.10	.040	.260	2.445	.016
CG income	−2.027	.630	−.231	−3.219	.002
CR gender	2.397	1.025	.187	2.338	.021
CR age	.229	.046	.800	4.988	.000
Caring time	.06	.015	.138	3.913	.000
SNS total score	−.147	.061	−.194	−2.408	.017

CG caregiver, *CR* care-recipient, *SNS* social network scale, *SSS* social support scale

daughters and sons-in-law. This is consistent with Chinese tradition "*yang er fang lao*", especially in rural area, which states that "bringing up a son for providing care when growing old". In Chinese rural area, sons usually dominate the family as noted "*nan zun nv bei*". Therefore, the sub-family of sons becomes the mainstream of the caregiving for the elderly, when the care from the spouse of the elderly is not available (Zhou 2000). Another tradition in Chinese culture "*nan zhu wai, nv zhu nei*" claims that men usually interact with people outside of the family and women deal with the affairs within the family and are in charge of details of housework, the daughters-in-law, therefore, play the second important role in caregiving for the elderly (Zhou 2003). Concerning the role of daughters in the process of caregiving for the elderly (parents), Chinese saying "*jia chu qu de nv er, po chu qu de shui*" defines a daughter as of the people outside of the family after she is married. Therefore, the sub-family of daughters no longer plays a central role in the long-term care for the elderly. With economic development and extramural communications, more children are rushing to metropolitan cities, looking for a job outside of the village, to get themselves well paid and improve the well-being of the whole family. Therefore, spouse of the elderly is gradually playing an important role in providing care for the elderly.

In the studied rural community, most caregivers opt to visit physician when medical help is needed. Seeking help from the traditional healers is the third common service that caregivers tend to use. This could be explained within Chinese cultural background. Chinese herbal medicine (*zhong yi*) emphasizes the balancing

between *yin* and *yang*, and the theory of "*qi* and *xue*" has been adopted by the rural residents to interpret the disease for long period. Additionally, the reasons for several age-related diseases remain unclear. For example, Chinese people may interpret dementia as the exhaustion of brain energy due to "imbalance between *yin* and *yang*". The other common source is seeking care assistance from relatives and friends; this might be explained with the framework of social support. In the studied community, people do not have quite a lot communication with the outside world and are living closely with each other within the same village, suggesting a relatively closer social support within the community.

2. Difference of social support and depression between caregivers providing care for healthy and non-healthy old adults

In this study, we did not find significant differences of social support assessed with SSS and SNS between caregivers of healthy and non-healthy old adults. This indicates that within the studied community, social support might be an intrinsic property of the studied population, without much influence from the condition of the care-recipients. We do observe that the rating of depression differed significantly between two categories of caregivers, and the caregivers of non-healthy elderly had higher scores of depression than caregivers of healthy old adults. This finding indicates that taking care of elderly with physical conditions might have greater burden on mental health status of the caregivers. This is consistent with Zhang et al. report (2002) of 40 caregivers of in-patients with chronic physical conditions, like myocardial infarction and cerebrovascular disease (Zhang et al. 2002). However, one may notice that the physical condition was self-reported and was not confirmed by senior physicians in this study. It is difficult to exclude other factors possibly interfering with caregiving, e.g., cognitive impairment. Therefore, the results could only be interpreted within this context. Further investigations are warranted to elucidate whether the outcome of depression is influenced by other problems in addition to physical conditions or specific disease entity.

3. The background of the caregivers and care-recipients and depression

We found that caregivers' age and residence, care-recipients' gender and age, and caring time were significantly associated with the score of depression scale. Taking the effect of social support into consideration, the results suggest that there remains a significant relationship between the score of depression scale and caregivers' age, care-recipients' gender and age, and caring time. These findings indicate that, during the process of caregiving, the outcome of depression is dependent on the backgrounds of caregivers and care-recipients. This study also found that caregivers' income was associated with the depression score, suggesting possible influence of socioeconomic status on the outcome of depression. Socioeconomic status usually consists of income, occupational status and educational level. He (2002) found that income influenced the mental and physical health of the elderly in rural areas and occupation influenced only on physical health (He 2002). The finding in our study of the possible association between income and outcome of depression provides further support on He's notion. However, our study did not find significant relationship between the occupation and educational level with depression. The reason for this is unclear. One possible explanation is that, in the studied rural

community, most caregivers are illiterate or had received fewer schooling education, and most of them are working in the home.

4. Social support and depression

Bivariate correlation analysis found that the score of depression was significantly related with the score of SSS and SNS, indicating potential association between the outcome of depression and social support. Multivariate analysis found the significant relationship between depression and SNS, not SSS. Reasons for this discrepancy are unclear. SSS focuses on the subjective evaluation of social support, and SNS on the objective itemized assessment. Vandervoort (1999) reported that quality of social support had greater influence on health than quantity of social support (Vandervoort 1999). He (2002) proposed that the effect of social support on health need to be investigated from at least three aspects: quantity of social support, quality of social support, and change of social network. He found that loss of network units had greatest effect on physical and physical health of the elderly (He 2002). The SSS and SNS scales used in this study are not clearly defined as what aspect of social support to be assessed. This might explain the different association patterns between depression and SNS and SSS scores among caregivers for the elderly. Consequently, further investigations are necessary on how quantity or quality of social support impacts depression during the process of caregiving. In this study, most of social support for the caregivers comes from the community studied. The finding of possible association between depression and social support may implicate that keeping the whole family in harmony and promote the inter-personal interactions within the community might contribute to mental health of caregivers for the elderly.

As discussed above, there remains several limitations of this study: 1) The empirical data were collected from a rural community of Jiangxi province located in East China. To a certain extent, the cultural beliefs and traditions shared within this community could be representative of Chinese rural area. More data are needed from other rural communities from different regions of China, which might contribute to a comprehensive profile of the impact of social support on depression among elders' caregivers within Chinese culture. 2) More elaborate extensions of social support to its quality, quantity and network units are necessary as proposed by He (2002) for studies conducted in Chinese rural area.

In conclusion, our study observed that during the long-term care for the elders in Chinese rural area, most caregiver tend to seek help from physicians or traditional healers. Caregivers of healthy elderly experienced less depression than those of non-healthy elderly. Depression among caregivers was associated with caregivers' and elderly care-recipients' background, especially income. Social support has certain influence on depression. Therefore, our findings imply that, to some extent, social support may mediate the relationship between caregivers' and elderly care-recipients' background and mental health status during the caregiving for the elderly. This is of great significance for promoting social support and social network for improving mental health service for the Chinese rural caregivers. Caregivers for Chinese rural elderly are understudied population. More empirical studies are certainly needed to further explore social support and their mental health status.

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