The Associations of Social Networks on the Depressive Symptoms among Chinese Elderly: The moderating effect of ADL

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Extended Abstract

1 Introduction

The close association between social networks and the mental health of older adults have been widely studied in gerontological research (Lei, Shen, Smith, & Zhou, 2015; Sicotte, Alvarado, Le_on, & Zunzunegui, 2008). According to the social convoy model, individuals are surrounded by supportive others throughout the life course (Antonucci, Ajrouch, & Birditt, 2014). With respect to older adults, instead of being isolated with few social interactions, the large body of literature has documented supportive convoys of social relationships, and their protective effects on the well-being of individuals in later life (Ajrouch, Blandon, & Antonucci, 2005; Cheng, Lee, Chan, Leung, & Lee, 2009; Webster, Antonucci, Ajrouch, Abdulrahim, & Al, 2015).

Previous studies distinguished Social networks in to family ties and friendships (Chopik, 2017; Litwin & Shiovitz-Ezra,2011). Studies from some Western countries have consistently shown that friendship interaction is positively related to self-esteem, morale and mental health among older adults, while family ties are not always beneficial, being with disability on the quality of the relationship (Chopik, 2017; Lee & Ishii-Kuntz, 1987; Lee & Shehan, 1989). Potential differences in the effects of family and friendship ties on emotional well-being in later life in non-Western contexts remain poorly studied on the whole, with a few exceptions. Although the amount of researches that focus on comparing the effects of family ties and friendship basing on non-Western context is not large, but most of studies from non-Western contexts which emphasize the culture of filial piety suggest that family ties may have stronger effects on mental health than that of friendship ties (Lei, Shen, et al., 2015; Li & Zhang, 2015). Our previous research find the effects family ties and friendship ties are contingent with the living situations of older adults (Tan, Lin and Chen, 2019). The result of our study basing on a sample of rural and urban Chinses older adults indicated that the friendship ties have greater effect on the urban older adults that that on the rural counterpart.

The abilities of daily life (ADL) of the elderly is also an important predictive variable for mental health. For those older adults whose ADL are impaired, his/her interaction with both physical and social environment would be limited, thus increasing the risks of depression for such individual (Bruce, 2001; Yang, 2006; Tang & Wang, 2010). Since the life situations of elderly change with the decline of ADL, the effects of family ties and friendship ties on depressive symptoms might also change. However, the moderating effect of ADL in the association between social networks, including the family ties and friendship ties, still isn't clear enough, and more discussion is needed.

In sum, using a nationwide survey of older Chinese, we intend to answer the following research questions. First, what are the effects of family ties and friend ties on the mental health of Chinese older adults? Second, does the relationship between family ties, friendship ties and mental health vary between older adults with or without function disability?

2 Methods

2.1 Data source

Ten percent data from the Follow-up Survey on the Status of the Elderly from Rural and Urban Areas in 2006 were used, with valid samples of 1,897 elderly aged from 60 to 102, including 964 from the urban area and 933 from the rural area.

Table 1 Gender and Age of Samples

		60-64	65-69	70-74	75-79	Above 80	Total
Rural	Male	87	128	131	84	66	496
	Female	94	92	99	80	72	437
	Subtotal	181	220	230	164	138	933
Urban	Male	74	138	133	82	52	479
	Female	79	150	138	41	77	485
	Subtotal	153	288	271	123	129	964
Total	Male	161	266	264	166	118	975
	Female	173	242	237	121	149	922
	Subtotal	334	508	501	287	267	1897

2.2 Measures

2.2.1 Depressive symptoms

Short-form Geriatric Depression Scale (GDS-15) was used to measure the depressive symptoms of the elderly, with a total score ranging from 0 to 15. The higher the score was, the more depressive symptoms would have. The Cronbach α coefficient of the scale in this research was 0.793.

2.2.2 Social networks

We used the Lubben Social Networks Scale (LSNS) (Lubben et al., 2006), an index that has been extensively used in the literature to assess social networks and social support for older adults (Chan et al., 2011; Leung et al., 2016), in order to measure the social networks of our sample of Chinese older adults. LSNS is constructed from a set of three questions evaluating family ties and a comparable three questions for friendship ties. The questions comprised: “How many relatives/friends do you see or hear at least once a month?”, “How many relatives/friends do you feel at ease with to talk about private matters?”, and “How many relatives/friends do you feel close to such that you could call on them for help?”. We coded the number answered by the participants for each question as 0 (none), 1 (1), 2 (2), 3(3 or 4), 4 (5 through 8), or 5 (9 or more). The three items were summed into a scale ranging from 0-15 for (separately) family ties and friendship ties. The Cronbach α coefficient of family networks and friendship networks was 0.862 and 0.898 respectively.

2.2.3 ADL

ADL was measured by a scale with 16 items. The elderly participants were required to evaluate the difficulty of each item independently (1=“easy”, 2=“difficult” and 3=“impossible”), then the aggregate score of 16 items were summed into a scale ranging from 16-48. The higher the score was, the poorer one’s ADL functioning would be. The elderly participant who had difficulty in accomplishing any item would be defined as the "with function disability".

2.2.4 Demographic and socioeconomic variables

Demographic and socioeconomic variables include Marital status (single or married), gender, age, living area (rural or urban) and individual annual income.

3 Results

3.1 Descriptive analysis

According to the score of ADL Scale, 757 elderly participants who had no any difficulty in accomplishing all items were defined as “without disability”, and the other 1,140 elderly participants with difficulty in fulfilling one or more items were defined as “with disability”. There were significant difference between two groups in all the independent, dependent and control variables.

Table 2 Descriptive statistics of older adults with and without function disability

	Without disability	With disability
Age***	68.18	73.17
	5.60	7.02
ADL***	16.00	23.95
	0.00	7.60
Number of chronic diseases***	1.61	2.29
	1.75	2.21
Annual income (RMB)***	8897	5565
	9988.98	7907.92
Family networks***	7.69	6.90
	3.93	3.97
Friendship networks***	6.09	4.27
	4.47	4.21
Social networks***	13.78	11.18
	7.29	6.99
Depressive symptoms***	4.25	6.39
	3.07	3.42
N	757	1140

Note: Values for categorical variables are in percent. The mean values, followed by standard deviations in parentheses, are presented for all other variables. *Indicates a significant difference (*** p<0.001, ** p<0.01, * p<0.05) between two groups basing on t test.

3.2 Regression analysis

The value of all the variables, including age, gender, marital status, living area, number of chronic diseases, annual income, ADL, family networks, friendship networks and depression, were normalized. With normalized depression score as dependent variable, ADL and social networks (family networks, friendship networks) as independent variables, and demographic and socioeconomic variables (age, gender, marital status, household register), health status (number of chronic diseases,), economic status (annual income) as controlled variables, multiple linear regression models were verified based on the participants’ ADL: Model 1 is a liner regression model of depressive symptoms for all the elderly, with depression as dependent variable. Model 2 is a liner regression model of depressive symptoms for the elderly without disability, in which ADL, as an independent variable is deleted since all the participants with disability have the same value of 16. Model 3 is a linear regression model of depressive symptoms for the with disability elderly, with disability variables same as Model 2. Model 4 adds the interaction items of social networks (family ties and friendship ties) with ADL, which is converted to a bivariate

variable(0=without disability, 1=with disability).

Analysis of regression showed that, in model 1, ADL, family networks and friendship networks were significantly associated with depressive symptoms. According to Model 2 and Model 3, the effects of family networks and friendship networks are contingent with ADL situation. For the elderly without disability, the coefficient of family networks (-0.08, p>.05) is smaller than that of friendship networks (-0.09*). For the elderly with disability, the regression coefficients of both family networks and friend networks are significant. Moreover, the predictive power of family networks (-0.16***) is greater than that of friend networks (-0.10**). Model 4 shows that the interaction item of with disability and family networks is significantly negative (-0.08*), which indicates that family networks have greater protecting effects on depressive symptoms for the elderly with disability comparing with the elderly with disability.

Table 4 Linear Regression Analysis Results of Depression

	Model 1 Whole sample	Model 2 Without disability	Model 3 With disability	Model 4 Moderating effect testing
Age	-0.03	0.04	0.04	0.04
Male	-0.04*	-0.07	-0.02	-0.04
Married	-0.07**	-0.20**	-0.07*	-0.08**
Urban	-0.11***	-0.13**	-0.12***	-0.12***
Number of chronic diseases	0.19***	0.20***	0.25***	0.22***
ADL	0.30***			
Annual income	-0.20***	-0.20***	-0.25***	-0.21***
Family networks	-0.13***	-0.08	-0.16***	-0.08*
Friendship networks	-0.07**	-0.09*	-0.10**	-0.06
with disability				0.16***
With disability *family networks				-0.08*
With disability *friend networks				-0.04
Total R^2	29.61	13.44	19.89	25.03
N	1897	757	1140	1897

Reference (partly)

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