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Parents' depressive symptoms and support from sons and daughters in Rural China

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Abstract

This investigation examined how initial levels of elder parents' depressive symptoms influenced financial, instrumental, and emotional support from sons and from daughters in rural China. Data derived from a two-wave (2001, 2003) longitudinal survey of 1,324 parents aged 60 and over living in rural areas of Anhui Province, China. Structural Equation Modeling with latent difference score was used to estimate the reciprocal relationships between children's support and elder parents' depressive symptoms. Results showed that older parents who had higher levels of depressive symptoms at baseline experienced reduced financial, instrumental, and emotional support from sons, but not from daughters. In rural China where the patrilineal family system has distinguished sons and daughters with respect to their functions in elder parents' support networks, the roles of sons and daughters warrant further examination, particularly when elder parents have some depressive symptoms, which elevates the needs of the parents and puts a strain on intergenerational relationships.

Keywords

depression; intergenerational support; gender differences; rural China; social selection process

Introduction

Rural Chinese elders have a rate of depression nearly twice that of their urban counterparts, which partly explains the high rate of suicide of the elderly in rural China (Chen, Hu, Qin, Xu, & Copeland, 2004; Chen et al., 2005). The high depression rate has been related to poverty, lack of formal social support, financial strains, and worry about medical expenses, all of which significantly erodes older people's psychological well-being (Krause, 1991; Sun, 2004).

In Chinese cultures, adult children are expected to be the primary providers of support for their elder parents because of the Confucian norm of filial piety (Cong & Silverstein, 2008a). The relationships between intergenerational support and depression have been found to be reciprocal, in that that intergenerational support influences the level of depression, defined as the social causation process, and in that depression influences intergenerational support, defined as the social selection process (Johnson, 1991; Wu & Hart, 2002). The social causation process has attracted wide attention, whereas the social selection process has been much less studied (Kaniasty & Norris, 2008; Knoll, Rieckmann, & Kienle, 2007). In this study, we examined the reciprocal relationships between elder parents' depressive

symptoms and the support they receive from sons and daughters with a focus on the social selection process, i.e. how depressive symptoms influenced the support from sons and daughters.

Effects of financial, instrumental, and emotional support on depression

Social support has been widely studied as either a contributing or a moderating cause that helps reduce depression (Pearlin, 1989). Social support is a multidimensional concept that may involve financial, emotional, and instrumental (i.e. hands-on) help (Krause, 2001; Silverstein, Cong, & Li, 2006; Wolff & Agree, 2004). Each dimension has its unique influences that may vary in different contexts, such as in different cultures, depending on various expectations of and needs for each specific dimension of support (Cong & Silverstein, 2008). In this study, we incorporated children's financial, emotional, and instrumental support and adopted a comprehensive approach for examining their relationships with elders' depressive symptoms in rural China.

Elders in rural China are vulnerable financially. A nationally representative survey in 2000 showed that only 1.5 percent of rural elders received social insurance payments, 0.6 percent of them had some pension from former employers, and 9.5 percent had saved for old age (China Research Center on Aging, 2003). This means that when elders can no longer work, their only dependable resources are their assets, savings, and their children. Life-long poverty does not allow elders to accumulate enough assets and savings for their old age (Pang, 2004). Their reliance on children is exacerbated when they do not have resources of their own (Lee & Xiao, 1998). Where expectations for intergenerational support are high, such as in rural China, financial support is an important reason for the lower level of depressive symptoms among elders found in the research (Cong & Silverstein, 2008b; Lee, Netzer, & Coward, 1995; Lee & Xiao, 1998; Silverstein et al., 2006).

Unlike emotional and financial support, instrumental support – despite its apparent cultural and practical significance – has shown inconsistent effects on the psychological well-being of Chinese elders (Chen & Silverstein, 2000; Silverstein et al., 2006; Sun, 2004). A recent study has proposed that different dimensions of support from sons, daughters, and daughters-in-law affect elder parents' depressive symptoms in different ways because there is a culturally defined hierarchical order of preferred support providers (Cong & Silverstein, 2008a).

Emotional support is another important dimension of filial piety, where the expectation is that financial and instrumental help must be delivered with respect and love (Sung, 1998). Emotional support is particularly important for Chinese elders as it improves elders' psychological well-being, sustains their physical health, and reduces their mortality (Cong & Silverstein, 2008b; Silverstein et al., 2006; Zhang, Li, & Silverstein, 2005).

Effects of depression on social support

Although social support is usually studied as a risk factor or deterrent factor for depression, depression itself contributes to the changes in social support as well (Antonucci, 1990; Pearlin, 1989). Cutrona, Russell and Rose (1986) found that elders who had better mental health in the baseline had higher levels of social support over the subsequent 6-month period. As suggested by social selection theory, people who suffer from poor health or mental health have problems maintaining social relationships, and therefore tend to alienate themselves from others (Johnson, 1991). There has been less research done on the social selection theory than on the social causation process, though some studies have found important implications for the effect of depression on received social support (Kaniasty & Norris, 2008; Knoll et al., 2007). In rural China, because of the importance of receiving

support to alleviate material strains and meet basic care needs, support itself is an important outcome; therefore, the social selection process deserves closer examination in this special cultural setting (Lee & Xiao, 1998). Because of this, the focus of this investigation was on how elders' depressive symptoms influenced the financial, emotional, and instrumental support they received from their adult children.

Intergenerational support: sons and daughters

As they have been raised in a strongly patrilineal culture, Chinese rural elders mostly believe that sons are the best providers of old-age support (Chen, 2001). Although daughters provide considerable emotional, financial, and instrumental support to parents, daughters' roles in elder parents' support networks may be secondary to those of sons because of the traditional beliefs in sons' responsibilities toward their parents (Cong & Silverstein, 2008a; Zhan, 2004; Zhang, 2007). In addition, sons and daughters may provide support based on different motivations; for example, daughters usually provide out of affection, while sons' support is more responsibility driven (Antonucci & Jackson, 2003; Knodel & Ofstedal, 2002; Wong, 2005).

It has been suggested that the primary care relationship is most likely to be influenced by care receivers' depression because conflicts and emotional burdens are stronger among primary care relationships than among secondary care relationships (John, 1991). In addition, relationships built upon obligations are more liable to impose stresses on caregivers when there are higher levels of demands. Daughters-in-law in Korean families were subject to higher levels of stresses, compared with those in the U.S. families and Korean American families, because daughters-in-law in Korean families are forced into the caregiving role instead of voluntarily assuming it (Youn, Knight, Jeong, & Benton, 1999). Hence, it can be expected that daughters' support will be less influenced by elder parents' depressive symptoms. This is because daughters are more likely to be voluntary providers of support who help out of love, and will thus be able to sustain the pressure of parents' emotional demands. Support from sons, a major part of which comes from daughters-in-law, may be severely challenged when elder parents have higher levels of depressive symptoms because daughters-in-law's involvement in providing support is obligatory and is loaded with greater stress.

In addition, the differences between sons and daughters suggest that the effects of their support on elder parents' depression will differ. The hierarchical compensatory model and the task-specific theory propose that support from persons who rank higher in the task-specific preference order will deliver greater benefits (Cantor, 1979; Cong & Silverstein, 2008a; Litwak, Silverstein, Bengtson, & Hirst, 2003). It is hard to know the exact preference order in regard to different dimensions of support because few studies have examined this aspect. Nevertheless, because of the patrilineal tradition, we would expect differences in how the support provided by sons and daughters affects their elder parents' depressive symptoms in rural China.

Hypotheses

Based on the above discussion of the possible reciprocal relationships between children's support and elders' depressive symptoms, the following hypotheses were proposed:

H1 (Social causation hypothesis): Financial, emotional, and instrumental support from sons and daughters reduces elders' depressive symptoms.

H2 (Social selection hypothesis): Elders' depressive symptoms reduces financial, emotional, and instrumental support from sons and daughters.

H3 (Gender difference hypothesis): The reciprocal relationships between elders' depressive symptoms and children's support varies based on the children's gender.

Previous studies have found that age, gender, marital status, income, and health are also related to psychological outcomes (George, 1996). Studies with Chinese elders have shown that age is inversely related to psychological well-being, and females are more likely to experience lower morale; in addition, being married and having better socio-economic and health status are likely to contribute to better psychological outcomes (Sun, 2004; Chen & Silverstein, 2000).

Method

Sample

The sample for this investigation was derived from the Longitudinal Study of Rural Elders' Well-Being in Anhui Province, China. Anhui Province is a mostly rural province and the fifth most populous province in China. Currently, 12 percent of the rural population is 60 years of age and older (compared with only 8.5 percent in the nation as a whole), making it one of the most elderly provinces in China. This region was chosen specifically for its relatively high density of older adults and high levels of out-migration of working age adults. Between 1995 and 2000, Anhui Province had the third highest rate of out-migration among all provinces in China, and a higher than average rate of labor-related migration (State Council of the People's Republic of China, 2000). Data were collected from a sample of adults aged 60 and over living in rural townships within Chaohu, a city of 4.5 million people located on the north bank of the Yangtze River in the central part of Anhui Province. This rural area of the province is generally known for its high rates of labor migration to the cities of Hefei, Nanjing, and Shanghai (Chaohu Statistical Bureau, 2001).

The sample was identified using a stratified multistage method to randomly select 1,800 potential respondents in April, 2001. First, 12 rural townships were randomly selected from all 126 townships in Chaohu. Second, six administrative villages were randomly selected in each township. Third, within each selected village, all people aged 60 and over were stratified to form two sampling frames based on age: (1) those aged 60–74, and (2) those aged 75 and above, providing an intentional over-sample of the 75+ population. Of 1,800 individuals randomly selected for the study, 1,715 completed the survey, yielding a response rate of 95.3 percent. In October 2003, the follow-up survey was conducted with 1,368 respondents, or 79.8 percent of the original participants. Of those respondents who were not located, 76 had moved out of the village and 240 had died. Twenty-three former respondents were located but either refused to participate, terminated their interviews, and/or were too ill to be interviewed. Finally, 1,324 older people who attended both waves of interviews and who had at least one living child were chosen as the working sample.

The surveys were conducted in the respondents' homes and included assessments of family relations, intergenerational transfers, physical health status, and psychological well-being. A standard back-translation method was used in order to ensure accuracy of the translated Chinese questionnaire and its consistency with the English version instruments.

Measures

The measure of the severity of depressive symptoms at baseline (2001) and follow-up (2003) was adapted from the Center for Epidemiologic Studies–Depression Scale (Radloff, 1977) and tailored to the target population (Hermalin, 2002). Three items indicated feelings of positive affect (feeling happy, enjoying life, feeling pleasure), two items indicated feelings of negative affect (feeling lonely, feeling upset), two items indicated feelings of marginalization (feeling useless, having nothing to do), and two items indicated somatic

symptoms (having poor appetite, having trouble sleeping). The frequency with which the respondent had experienced each symptom in the past week was coded as 0 (*rarely or none of the time*), 1 (*some of the time*), or 2 (*most of the time*). The reliability coefficient for the nine items was $\alpha = .80$ at the second wave of measurement, and $\alpha = .76$ for the first wave of measurement.

Financial transfers from sons and daughters at baseline (2001) and follow-up (2003) were based on measures of the total amount that the parent had received from each child during the past 12 months. Response options were the following categories based on Chinese RMB currency (1 RMB = approx. \$0.14): 0 = *none*, 1 = *less than 50*, 2 = *50–99*, 3 = *100–199*, 4 = *200–499*, 5 = *500–999*, 6 = *1000–2999*, 7 = *3000–4999*, 8 = *5000–9999*, 9 = *more than 10,000*. The actual amount was taken if it was available, or the median amount of the category was used if the exact amount was not supplied. For each wave, all financial support from sons and from daughters was summed up, respectively. A log transformation ($\ln+1$) was applied to adjust their distribution for a strong positive skew.

Intergenerational instrumental support at baseline (2001) and follow-up (2003) included household chores and personal care from sons' families and daughters' families. Respondents were asked whether during the past 12 months they received support because of their poor health, with (a) household chores, such as cleaning the house and washing clothes, and (b) personal care tasks, such as bathing and dressing. If they received help, they were further asked to name the person or persons who provided each kind of help and how often it was provided. For each person cited, the support intensity for each kind of help was coded as 0 (*none*), 1 (*seldom*), 2 (*several times a month*), 3 (*at least once per week*), or 4 (*every day*). For each wave, the support intensities of sons and their spouses were added up to construct sons' support, and support provided by daughters and their spouses were added up to construct daughters' support.

Emotional support at baseline (2001) and follow-up (2003) were measured by three questions assessing the quality of parent–child relationships. These questions were adapted from the intergenerational solidarity inventory (Mangen, Bengtson, & Landry, 1988) which assesses emotional cohesion between generations: (1) “Taking everything into consideration, how close do you feel to (this child)?” (2) How much do you feel that (this child) would be willing to listen when you need to talk about your worries and problems? (3) “Overall, how well do you and (this child) get along together?” We measured emotional support from sons with three indicators calculated as the average of each of those three items across sons. We measured emotional support from daughters in a similar way. There were four constructs for emotional support from adult children, namely baseline emotional support from sons ($\alpha=0.87$), from daughters ($\alpha=0.86$), and second wave emotional support from sons ($\alpha=0.87$) and from daughters ($\alpha=0.86$).

Elder parents' socio-demographic control variables included baseline age, gender, marital status, and income. Age was represented as age years at baseline. Income was represented as the log of the RMB value of the total income that the respondent and spouse received from work or pension over the last year. Gender and marital status were coded as dummy variables, for gender (1 = *female*) and for marital status (1 = *currently unmarried*). Elders' health status at baseline was also controlled for, measured as a 3-indicator latent construct ($\alpha = 0.90$), including difficulties in 1) performing personal activities of daily living (6 tasks), 2) instrumental activities of daily living (5 tasks), and 3) activities requiring physical strength, mobility, and flexibility (4 tasks). Respondents indicated the level of difficulty performing each task: 0 (*no difficulty*), 1 (*some difficulty*), or 2 (*cannot do it without help*).

Analysis

Structural Equation Modeling with explicit latent difference scores was used to estimate reciprocal relationships between elders' depressive symptoms and intergenerational support. As suggested by McArdle (2001), this allows the estimation of lagged change models using latent difference scores; the key feature of this model is "the unit-weighted formation and explicit definition of the latent difference score (p. 348)," i.e. the second wave measurement of financial, emotional, and instrumental support, and depressive symptoms were completely explained by the first wave measurement and latent differences, and both the first wave measurement and latent difference score had the loading "1" on the second wave measurement. This explicitly identifies change over time, as shown in Figure 1.

Confirmatory Factor Analysis was conducted for the measurement model of depressive symptoms and emotional support for two waves. Because only one indicator was available for those latent variables concerning financial support and instrumental support, perfect reliability of these indicators was assumed.

Specifically, with the presence of missing values, the mean structure which adopts maximum likelihood was used to estimate the coefficients (Byrne, 2001). The intercepts of the first wave and the second wave financial, emotional, and instrumental support, as well as depressive symptoms, were defined as zero. The intercepts of the latent differences were freely estimated. In addition, the means of the same indicator at two interviews were constrained to be the same. By imposing this equality constraint, the intercept of the latent difference reflects the difference in the means across time (Byrne, 2001; McArdle, 2001).

Figure 1 is a simplified illustration of the proposed structural model, which comprises 12 major structural paths (bold lines), with six testing whether the first-wave depressive symptoms reduced latent changes in financial, instrumental, and emotional support from sons and daughters (3×2), and another six testing whether first-wave financial, emotional, and instrumental support from sons and daughters helped reduce latent changes in depressive symptoms in their parents (3×2). Errors of the same indicator of depressive symptoms across two waves were correlated; so were the errors of indicators of emotional support. In addition, for emotional support, errors of the same indicator for children of different gender (sons vs. daughters) at the same wave were also correlated.

What is not explicitly shown in Figure 1 is that all residuals of latent differences were freely correlated, as were all residuals of latent constructs of first-wave intergenerational support and depressive symptoms. To avoid confounding effects, the proposed model was estimated with exogenous control variables including age, gender, marital status, income, and health. Exogenous variables were freely intercorrelated to avoid the risk of misspecification (Levin, Chatters, & Taylor, 1995). Seventy structural paths were included to examine the effects of exogenous variables on baseline and latent changes in intergenerational support and parents' depressive symptoms ($5 \text{ exogenous variables} \times 7 \text{ intergenerational support and depressive symptoms} \times 2 \text{ waves}$).

Results

Sample characteristics

As seen in Table 1, the average age of the parents in the sample was 70 years ($SD = 7.05$), slightly more than half (53 %) were female, and 40 percent were unmarried. The average income was 932.66 RMB ($SD=1570.50$). Elders averaged 4.87 out of a possible 30 on the functional impairment index ($SD=6.41$). Information concerning intergenerational support and elders' depressive symptoms is presented in Table 1.

Measurement model

The factor loadings of depressive symptoms are presented in Table 2. For the measurement model of depressive symptoms, the errors of items within each of the four dimensions were correlated, as shown in Figure 1. The resulting measurement model was satisfactory for both waves, (for wave 1: $\chi^2(21) = 81.3$, RMSEA = 0.047, CFI = 0.973, ECVI = 0.111 (saturated, 0.082)); for wave 2: $\chi^2(21) = 59.3$, RMSEA = 0.037, CFI = 0.986, ECVI = 0.095 (saturated, 0.082)). When estimating the overall structural model, imposing equality constraints for factor loadings across two waves significantly worsened the model fit (from $\chi^2(790) = 1743.4$ (finalized model) to $\chi^2(798) = 1767.4$, $\Delta \chi^2(8) = 24$, $p < 0.01$). Therefore, in the actual structural model, we did not assume that depressive symptoms had the same factor loadings over time.

The measurement model of emotional support was saturated because it had only three indicators. Therefore, no correlation was added between error terms in the measurement model. However, the complete model with exogenous variables suggested that the correlations between the error term of “feeling closeness” and that of “willing to listen”, and between the error term of “willing to listen” and that of “getting along” significantly improved the model fit (from $\chi^2(798) = 1768.0$ to $\chi^2(790) = 1743.4$ (finalized model), $\Delta \chi^2(8) = 24.6$, $p < 0.01$). For the measurement model of daughters’ emotional support, imposing equality constraints on factor loadings across two waves changed the model fit from $\chi^2(788) = 1740.5$ to $\chi^2(790) = 1743.4$ (finalized model), $\Delta \chi^2(2) = 2.9$, $p > 0.05$. For the measurement model of sons’ emotional support, imposing equality constraints on factor loadings across two waves changed the model fit from $\chi^2(788) = 1740.3$ to $\chi^2(793) = 1743.4$ (finalized model), $\Delta \chi^2(2) = 3.1$, $p > 0.05$. Because none of the constraints implied a significantly worsened model fit, it was assumed that the measurement models of emotional support at two waves were the same both for daughters and for sons.

Structural equation model

As shown in Table 3, baseline depressive symptoms significantly reduced financial, instrumental, and emotional support from sons, but marginally increased financial support from daughters. As suggested by the test for invariance of regression weights, elder parents’ depressive symptoms had significantly different effects on sons’ vs. daughters’ latent changes in financial and instrumental support, and had marginally different effects on sons’ and daughters’ latent changes in emotional support. Baseline emotional support from sons and financial support from daughters reduced parents’ depressive symptoms between two waves; baseline instrumental support from sons marginally reduced parents’ depressive symptoms. The test for invariance of regression weights related to support from sons and from daughters showed significant differences between sons and daughters in the effects of their financial support on latent changes in elder parents’ depressive symptoms, and marginally significant differences concerning the effects of instrumental and emotional support on latent changes in elder parents’ depressive symptoms. Table 4 presents the effects of exogenous variables on endogenous variables.

Discussion

Both social causation and social selection are important processes that describe the reciprocal relationships between depressive symptoms and intergenerational support; yet few studies have addressed their reciprocal relationships explicitly in rural China. Intergenerational support has attracted wide attention, not only because of its influences on elders’ health outcomes, but also because it is an important outcome per se due to the material relief and hope it provides in times of need (Lee & Xiao, 1998; Sun, 2004). This study examined the reciprocal relationships of intergenerational support and elders’

depressive symptoms within the context of patrilineal family system where sons and daughters play different roles in elder parents' support networks, though the rigidity of support providers' hierarchical order has been softened because of rapid social changes and because elders' preferences are contextual to their personal situations (Cong & Silverstein, 2008a).

The social selection hypothesis, namely that depressive symptoms contribute to the reduction of support from children, is partially supported. Significant differences were found between sons and daughters, which provides evidence for the gender difference hypothesis. Baseline depressive symptoms reduced support from sons in every dimension, but not support from daughters. This is consistent with the proposed mechanism by Johnson (1991) that the primary relationship is the first to be hurt in the presence of emotional stresses, possibly because there is too much emotional burden imposed on the primary support providers when elders have a higher level of depressive symptoms. As secondary support providers, daughters may not be affected as much as sons because, in the patrilineal family system, their participation in elders' support networks is voluntary (Antonucci, Akiyama, & Birditt, 2004). Nevertheless, Jason (1991) suggested that relationships with secondary providers might be harmed in the long run, which, however, cannot be confirmed in a short-term study. Different motivations for support offer another explanation for the observed differences between sons and daughters. Because sons provide out of obligation, particularly when a considerable part of the support provided by sons' families is provided by daughters-in-law, the caregiver burden tends to be greater in this situation, and stresses will alienate support providers (Cong & Silverstein, 2008a; Silverstein & Bengtson, 1997). In contrast, daughters provide out of love (Silverstein & Bengtson, 1997), which buffers the negative effect of emotional stresses, and consequently explains why daughters were not intimidated by parents' depressive symptoms. The finding that daughters' financial support was somewhat mobilized by elder parents' higher levels of depressive symptoms is consistent with this line of argument.

Effects of social support on parents' depressive symptoms also showed gender differences. This finding is consistent to some extent with the hierarchical compensation model. Sons and their families, particularly daughters-in-law, are expected to be the major providers, which may account for why sons' instrumental support rather than that of daughters' marginally reduced elders' depressive symptoms over time. The reason that this effect was only marginally significant might be related to our choice not to differentiate between sons' and daughters-in-law's support and not to differentiate between personal care and household chore (Cong & Silverstein, 2008a) so as to have focus on manageable research questions. However, our finding that sons' emotional support and daughters' financial support reduced elders' depressive symptoms suggests a much more complicated mechanism, one that has rarely been studied. Elder parents may cherish their emotional closeness with sons more than they do with daughters, and this might be because sons are supposed to carry the family name and take care of parents in their old age (Feldman, Tuljapurkar, Li, Jin, & Li, 2007). However, daughters' financial support may help to relieve financial strains and complement sons' obligations to provide old-age security. When financial support is provided by daughters out of love, positive effects are expected. In addition, sons' obligations toward their parents' old-age security may be more oriented toward coresidence and hands-on care, with financial support being an internalized and taken for granted benefit, which reduces its consequences on elders' psychological outcomes (Cong & Silverstein, 2008a, 2010). It is also possible that financial support given by daughters is provided under particular circumstances that will benefit elders' psychological well-being. As proposed by Cong and Silverstein (2008b), when financial support from daughters is accompanied by parents' help with the care of grandchildren, older parents might have fewer depressive symptoms because of their sense of reciprocity (Wolff & Agree, 2004).

From the perspective of sons, elder parents' depressive symptoms have a self-reinforcing effect because depressive symptoms reduce sons' emotional support, the lack of which increases elder parents' depressive symptoms. From the perspective of daughters, however, elder parents' depressive symptoms are not self-reinforcing, because daughters' financial support bails elder parents out of the vicious circle of depression and its unfavorable outcomes. Elders with daughters may be better off with respect to depressive symptoms, because daughters are more reliable providers of support, even under conditions of emotional stress and excessive demands.

Modernization and its accompanying rapid social changes, such as migration from rural to urban areas, have brought about many important changes in intergenerational relationships in rural China (Cong & Silverstein, 2010b, 2011). The reduced availability of sons and the increased accessibility of daughters have challenged traditional beliefs in sons' exclusive obligations (Zhang, 2007; Zimmer & Kim, 2008). Nevertheless, parents' values usually lag behind real social change, which may prevent them from fully embracing the increased importance of daughters in their support networks (Cong & Silverstein, 2010a). Identifying different roles of sons and daughters in elders' support networks, with the increased prominence of daughters, is crucial for elders' well-being. This is especially consequential when children provide the most reliable support to elders in rural China.

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Figure 1.
Simplified structural equation model.

Table 1

Sample characteristics (N=1,209–1,324).

	Mean	SD	Coding scheme and range
Exogenous variables			
Age	70.05	7.05	58–92 years
Gender	0.53		1 = <i>female</i>
Unmarried	0.40		1 = <i>not married</i>
Income (RMB)	932.66	1570.50	0–12,000 RMB
Functional limitation	4.87	6.41	0–30 (<i>most impaired</i>)
Endogenous variables			
Financial support from sons (T1)	631.34	1085.71	0–15,150 RMB
Financial support from daughters (T1)	398.73	734.45	0–11,500 RMB
Instrumental support from sons (T1)	2.29	4.44	0–48
Instrumental support from daughters (T1)	1.65	3.91	0–40
Emotional support from sons (T1)	4.09	1.43	0–6 (<i>strongest support</i>)
Emotional support from daughters (T1)	4.48	1.36	0–6 (<i>strongest support</i>)
Parents' depressive symptoms T1	6.30	3.96	0–18 (<i>most depressed</i>)
Financial support from sons (T2)	851.85	1419.52	0–30,000 RMB
Financial support from daughters (T2)	485.50	866.23	0–15,000 RMB
Instrumental support from sons (T2)	1.85	4.38	0–49
Instrumental support from daughters (T2)	1.25	3.12	0–24
Emotional support from sons (T2)	4.67	1.33	0–6 (<i>strongest support</i>)
Emotional support from daughters (T2)	4.20	1.45	0–6 (<i>strongest support</i>)
Parents' depressive symptoms (T2)	6.26	4.06	0–18 (<i>most depressed</i>)

Table 2

Factor loadings of depressive symptoms and emotional support (N=1324).

	Wave 1		Wave 2	
	Unstandardized	Standardized	Unstandardized	Standardized
Depressive symptoms				
Positive affect				
Feeling pleasure	1.000	0.492	1.000	0.538
Enjoying life	1.031	0.507	0.954	0.489
Feeling happy	0.993	0.510	0.850	0.490
Negative affect				
Feeling lonely	1.096	0.586	0.968	0.554
Feeling upset	1.189	0.650	0.976	0.593
Feelings of marginalization				
Feeling useless	1.136	0.540	1.193	0.632
Having nothing to do	0.774	0.397	1.023	0.563
Somatic symptoms				
Having poor appetite	0.507	0.272	0.552	0.368
Having trouble sleeping	0.910	0.430	1.006	0.515
Sons Emotional Support				
Feel close	1.000	0.859	1.000	0.879
Get along	0.968	0.878	0.968	0.876
Willing to Listen	0.958	0.747	0.958	0.735
Daughters Emotional Support				
Feel close	1.000	0.843	1.000	0.853
Get along	1.032	0.881	1.032	0.886
Willing to Listen	0.856	0.718	0.856	0.710

Source: Longitudinal Study of Rural Elders' Well-Being in Anhui Province, China (2001-2003).

Table 3

Unstandardized Estimates of Social Selection and Social Causation Process (N=1324).

Social selection (the influence of baseline depressive symptoms on latent changes in:)	Unstandardized Estimates	Invariance test for regression weights related to support from sons and from daughters
Financial support		$\Delta\chi^2(1)=11.8, p<0.001$
From sons	-0.569**	
From daughters	0.288 [†]	
Instrumental support		$\Delta\chi^2(1)=6.5, p<0.05$
From sons	-1.059**	
From daughters	-0.022	
Emotional support		$\Delta\chi^2(1)=3.6, p<0.1$
From sons	-0.133*	
From daughters	-0.021	
Social Causation (the effect of baseline intergenerational support on latent changes in depressive symptoms)		
Financial support		$\Delta\chi^2(1)=4.4, p<0.01$
From sons	0.002	
From daughters	-0.014*	
Instrumental support		$\Delta\chi^2(1)=3.6, p<0.1$
From sons	-0.005 [†]	
From daughters	0.020	
Emotional support		$\Delta\chi^2(1)=3.8, p<0.1$
From sons	-0.103**	
From daughters	0.017	
Model fit		
$\chi^2(795)$	1743.4	
CFI	0.985	
RMSEA	0.030	
ECVI	1.756	(Saturated ECVI: 1.633)

Source: Longitudinal Study of Rural Elders' Well-Being in Anhui Province, China (2001-2003).

***p<0.001

[†]p<0.1

*p<0.05

**p<0.01

Table 4

Exogenous variables' effect on endogenous variables (N=1,324).

Endogenous Variables	Exogenous Variables				
	Age	Gender	Married	Income	Health
Financial, sons T1	*** -0.050	0.262 [†]	** -0.477	*** -0.156	-0.039
Financial, daughters T1	*** -0.052	* -0.296	*** -0.501	** -0.061	-0.004
Instrumental, sons T1	0.012	0.394	* 0.692	* -0.110	0.021
Instrumental, daughters T1	-0.016	0.155	0.087	0.001	0.058
Emotional, sons T1	-0.001	* 0.078	† -0.063	*** -0.016	* -0.015
Emotional, daughters, T1	** -0.007	0.034	-0.047	-0.001	-0.000
Depressive symptoms T1	0.000	0.011	* 0.077	-0.006	*** 0.051
Financial, sons LD ^a	-0.011	-0.047	0.082	-0.025	-0.034
Financial, daughter LD	-0.010	0.030	-0.132	-0.006	0.046
Instrumental, sons LD	-0.005	-0.162	* 0.570	-0.025	*** 0.565
Instrumental, daughters LD	* -0.035	-0.131	0.188	0.000	*** 0.289
Emotional, sons LD	0.002	0.051 [†]	0.030	0.003	-0.009
Emotional, daughters, LD	-0.001	0.055 [†]	-0.011	-0.004	*** -0.029
Depressive symptoms LD	-0.001	0.037	-0.007	* -0.009	*** 0.085

Source: Longitudinal Study of Rural Elders' Well-Being in Anhui Province, China (2001-2003).

[†] p<0.1

* p<0.05

** p<0.01

*** p<0.001

^a LD: Latent difference (change)