Sibling relationships in later life: A different story in China

Abstract

With the increase in life expectancy and population mobility, the amount of social support available to the elderly gradually decreases. However, as an essential social support resource in later life, siblings have not received enough attention in China. Adopted data from 2014 Chinese Longitudinal Healthy Longevity Survey (CLHLS) and multilevel logistics regression, this study examined the determinants of sibling relationships in later life, using frequent visits provided by siblings as a proxy, mainly focusing on the influence of birth order and gender in the context of Chinese culture. Results suggested that: (1) Compared to sisters, brothers were more likely to provide frequent visits to the elderly, which was different from the results observed in the western cultures; (2) The association of sibling` gender with frequent visits was negatively moderated by the sibling`s birth order and positively moderated by the elderly`s gender; (3) Age, proximity, registered residence, socioeconomic status, and parents` survival status were also found to have significant effects.

Keywords: sibling relationships; gender; birth order; older adults; China

Background

With the sharp decline in China's fertility rate and the significant rise in life expectancy, both the number and proportion of the elderly in China have risen rapidly. In 1982, the total number of people aged 65 and over was 49.28 million, accounting for 4.91% of the total population; this rose to 88.27 million (7.10%) in 2000, and further to 119 million (8.92%) in 2010 (LGO, 1985, 2002, 2012). However, with the extension of life expectancy and the intensification of population mobility, the risks of disability and widowhood of the elderly are gradually increasing, so is the number of empty-nesters older adults. Also, China's social security system is not yet sound, which leads to fewer social support resources available to the elderly in their later life.

However, as an essential social support resource in old age, the critical role of a sibling has not received enough attention in China. Older adults in China currently has a relatively high number of surviving siblings, and the extended life expectancy has increased the likelihood that siblings will survive, increasing the possibility that they will receive support from their siblings in later life. Previous studies indicated that siblings play an important role in supporting each other and providing care (Cicirelli, 1980; White, 2001; Robinson, 2002; Van Volkom, 2006), especially when the other suffered physical injury and the loss of a spouse or child (Degeneffe & Burcham, 2008; Namkung et al., 2017). However, there is only a few research on Chinese sibling relationships in later life (Lin,1993; Lin, 2002; Lu, 2007).

Objective

Adopted data from 2014 Chinese Longitudinal Healthy Longevity Survey (CLHLS) and multilevel logistics regression, using frequent visits provided by siblings as a proxy, this study aimed to investigate the determinants of sibling relationships in later life, mainly focusing on the influence of the birth order of sibling and the gender of elderly in the context of Chinese culture.

Data and Method

The data used in this article are from the Chinese Longitudinal Healthy Longevity Survey (CLHLS) conducted in 2014 by the Center for Healthy Aging and Development Studies at Peking University. Older adults who were under 65 (N=85), had no living siblings (N=3448), lived with siblings (N=4) and had incomplete information of interested (N=575) were excluded. This study finally included a total of 3,080 older adults and 6,706 siblings. The age of the elderly in the sample ranged from 65-112, among which 51% percent were female, had one sibling at least and nine siblings at most.

Multilevel logistic regression was employed to examine the determinants of sibling relationships in later life. The first level was the sibling, and the second level was the elderly.

Results

Descriptive Results

Table 1 shows the descriptive results of the sample. Figure 1 shows the distribution of frequent visits provided by sibling based on sibling`s birth order and the elderly`s gender. In contrast to the older siblings, those younger than the elderly provided more frequent visits (see the left one of Figure 1); compared with female elderly, male elderly received more frequent visits from their siblings (see the right one of Figure 1).

Table 1 Characteristics of the sample

Variable	NO. or %
No. of Old Adults	3080
No. of Siblings	6706
Sibling-level variables	
Frequent visits (No)	61.65
Male (Female)	50.37
Aged 65~84 (Below 65)	65.15
Aged 85 and above (Below 65)	15.84
Younger (Older)	75.89
Near (no)	53.86
Elderly-level variables	
Male (Female)	48.44
Aged 85 and above (65~84)	35.16
Rural (Urban)	52.27
Wealthy (No)	17.11
High Occupational status (No)	7.95
Having a spouse (No)	48.99
At least one children passed away (No)	21.40
Having at least one living parents (No)	6.72
IADL dysfunction (No)	53.67

Note: Values in parentheses represent the reference group.

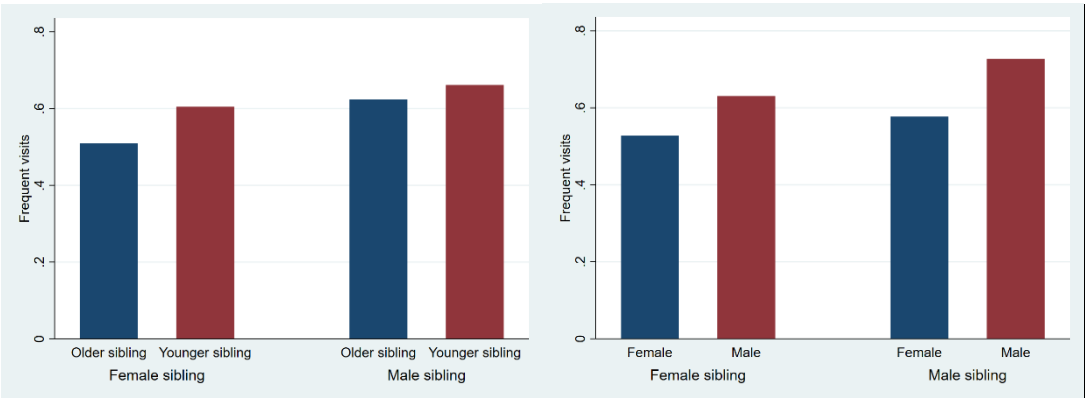

Figure 1 Distribution of frequent visits by birth order and gender

Moderating Effect of the Sibling`s Birth Order

Table 2 is the results of multilevel logistic regression (detailed results are shown in Table A1). Model 2 added interaction items of sibling`s gender and birth order based on model 1. It showed that younger siblings were more likely to provide frequent visits to the elderly (β =1.501, $p < 0.001$); birth order negatively affected the relationship between sibling`s gender and frequency visits (β=-0.746, $p < 0.05$). The above relationship did not change in model 4.

Table 2 Results of multilevel logistic regression for frequent visits

VARIABLE	Model 1	Model 2	Model 3	Model 4
Fixed effects				
	Sibling-level variables			
Male(female)	0.680***	1.242***	0.400*	0.951**
	(0.140)	(0.271)	(0.188)	(0.306)
Younger(older)	1.168***	1.501***	1.174***	1.484***
	(0.187)	(0.233)	(0.187)	(0.233)
	Elderly-level variables			
Male(female)	1.006***	1.011***	0.748**	0.774**
	(0.234)	(0.235)	(0.261)	(0.263)
	Interaction terms			
Male sibling # Younger sibling		-0.746*		-0.699*
		(0.303)		(0.305)
Male sibling # Male elderly			0.596*	0.545*
			(0.275)	(0.275)
Random effects				
Variance(sex of sibling)	0.408*	0.406*	0.425*	0.422*
	(0.184)	(0.183)	(0.182)	(0.182)
Variance(con)	1.471***	1.475***	1.472***	1.476***
	(0.048)	(0.049)	(0.048)	(0.049)
Observations	6,706	6,706	6,706	6,706
Number of groups	3,080	3,080	3,080	3,080

Note: Values in parentheses represent the reference group; All control variables were included.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Figure 2 shows the moderating effect of sibling`s birth order based on model 4. It suggested that sibling`s birth order had a greater influence on the frequent visits provided by sisters.

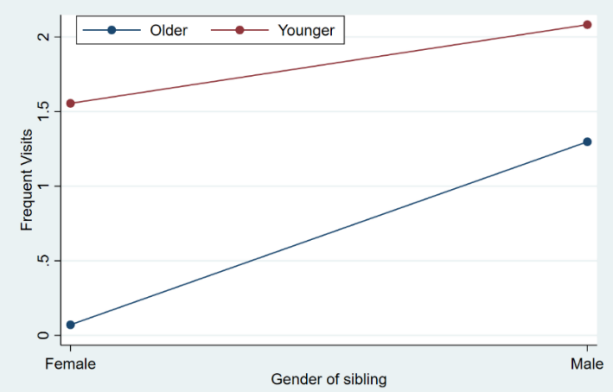

Figure 2 The moderating effect of the birth order of sibling

Among the four combinations of interaction term, sibling was most likely to provide frequent visits in the "male sibling – younger sibling" group; the possibility of sibling providing frequent visits in the “male sibling – older sibling” was significantly higher than that in the “female sibling– older sibling” group; the possibility of sibling providing frequent visits in the “female sibling – younger sibling” was significantly higher than that in the “female sibling – older sibling” group. There is no significant difference between “male sibling– older sibling” and “female sibling – younger sibling” in the possibility of providing frequent visits.

Moderating Effect of the Elderly`s Gender

From model 4, it can be seen that the gender of sibling ($\beta=0.951$, $p < 0.01$) and older adult ($\beta=0.774$, $p < 0.01$), and the interaction term between them ($\beta=0.545$, $p < 0.05$) all had significant impact on frequent visits.

Figure 3 is the moderating effect of the elderly`s gender based on model 4. It indicated that the elderly`s gender had a more considerable influence on the frequent visits provided by brothers.

Among the four gender compositions, siblings were significantly more likely to provide frequent visits in the " male sibling – male elderly" group. The possibility of sibling providing frequent visits in the "female sibling – male elderly" group was significantly higher than that the "female sibling –female elderly" group; however, there is no significant difference in the possibility of Sibling providing frequent visits among "male sibling –female elderly", "female sibling –male elderly", "male sibling –female elderly" and "female sibling –female elderly".

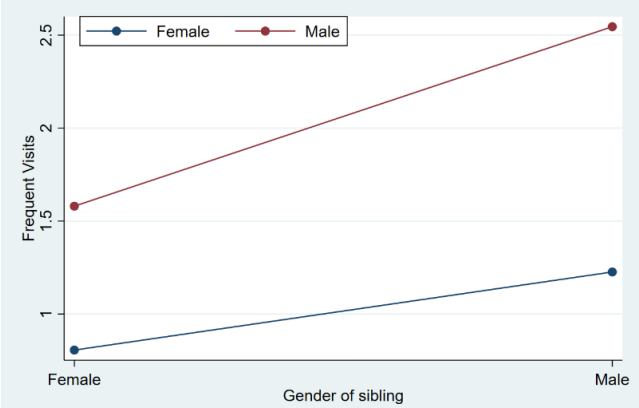

Figure 3 The moderating effect of the gender of older adult

Furthermore, siblings in the younger cohort and lived closer to the elderly were more likely to provide frequent visits; older adults in younger age groups, lived in rural areas, wealthier, had lower occupational status and at least one living parent was more likely to receive frequent visits from their siblings. However, the marital status and children`s survival status of the elderly did not have a significant impact on the dependent variable.

Conclusion

1. Compared to sisters, brothers were more likely to provide frequent visits to the elderly;
2. The association of the gender of a sibling with frequent visits was negatively moderated by sibling`s birth order and positively moderated by the elderly`s gender.
3. Age, proximity, registered residence, socioeconomic status, and parents` survival status were also found to have significant effects.

Appendix

Table A1 Results of Multilevel Logistic Regression

Variable	Model 1		Model 2		Model 3		Model 4	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Fixed effects								
			Sibling-level variables					
Male(female)	0.680***	(0.140)	1.242***	(0.271)	0.400*	(0.188)	0.951**	(0.306)
Aged 65~84 (below 65)	-0.515**	(0.189)	-0.515**	(0.189)	-0.513**	(0.189)	-0.514**	(0.189)
Aged 85 and above (below 65)	-1.381***	(0.295)	-1.384***	(0.296)	-1.384***	(0.296)	-1.387***	(0.296)
Younger(older)	1.168***	(0.187)	1.501***	(0.233)	1.174***	(0.187)	1.484***	(0.233)
Near(no)	3.279***	(0.201)	3.299***	(0.202)	3.264***	(0.201)	3.284***	(0.202)
Constant	-1.088**	(0.366)	-1.336***	(0.382)	-0.949*	(0.372)	-1.192**	(0.389)
			Elderly-level variables					
Male(female)	1.006***	(0.234)	1.011***	(0.235)	0.748**	(0.261)	0.774**	(0.263)
Aged 85 and above (below 65)	-1.313***	(0.274)	-1.316***	(0.275)	-1.320***	(0.275)	-1.322***	(0.276)
Rural(urban)	0.679**	(0.216)	0.684**	(0.217)	0.691**	(0.217)	0.695**	(0.217)
Wealthy(no)	0.744**	(0.287)	0.744**	(0.288)	0.737*	(0.287)	0.738*	(0.288)
High professional status(no)	-0.776+	(0.403)	-0.774+	(0.405)	-0.776+	(0.404)	-0.774+	(0.405)
Having a spouse (no)	-0.126	(0.244)	-0.133	(0.245)	-0.138	(0.244)	-0.143	(0.245)
At least one children passed away(no)	-0.01000	(0.261)	-0.00886	(0.262)	-0.0203	(0.262)	-0.0182	(0.263)
Having at least one living parents(no)	2.215***	(0.475)	2.219***	(0.477)	2.226***	(0.476)	2.228***	(0.478)
IADL dysfunction(no)	-1.005***	(0.238)	-1.011***	(0.240)	-1.013***	(0.239)	-1.018***	(0.240)

Table A1 (Continued)

Variable	Model 1		Model 2		Model 3		Model 4	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
			Interaction terms					
Male sibling # Younger sibling			-0.746*	(0.303)			-0.699*	(0.305)
Male sibling # Male elderly					0.596*	(0.275)	0.545*	(0.275)
Random effects								
Variance(sex of sibling)	2.259*	(0.830)	2.254*	(0.823)	2.339*	(0.854)	2.325*	(0.845)
Variance(con)	18.942***	(1.833)	19.104***	(1.853)	18.996***	(1.836)	19.140***	(1.855)
Observations	6,706	6,706	6,706	6,706	6,706	6,706	6,706	6,706
Number of groups	3,080	3,080	3,080	3,080	3,080	3,080	3,080	3,080

Note: Values in parentheses represent the reference group.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1