



Does intergenerational support affect older People's social participation? An Empirical study of an older Chinese population

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ABSTRACT

As a means of social support, intergenerational support plays an essential role in encouraging older people to participate in society. Data on 3142 older adults were collected from the China Survey of Elderly Health Influencing Factors (CLHLS), and logistic regression models were used to determine the effects of several types of intergenerational support on social participation and whether self-rated health and life satisfaction mediated the associations between intergenerational support and social participation. Among all the three types of intergenerational support, the results showed that financial support and emotional support were positively associated with the social participation of the older Chinese in our sample. We observed rural–urban differences in the effects of financial support and emotional support on social participation, which were significant in the urban groups. Gender differences also exist in these relationships. The effects of emotional support on social participation were significant in both groups and the impact of financial support was obvious only in the female group. Regarding the mediating effect, financial support was found to improve the participants' self-rated health, which enhanced their social participation. Emotional support increased the participants' life satisfaction, which led to higher levels of social participation. Based on the findings of this study, policymakers should advocate to strengthen financial and emotional support from adult children in the community.

1. Introduction

In the *Global Report on Ageing and Health (2018)*, the World Health Organisation (WHO) defined active ageing as the improved quality of life of older adults and their optimised health, social participation, and opportunities. As a pillar of active ageing, social participation enables older adults to realise their values and improve their quality of life through social, economic, and political activities (McLaughlin, Connell, Heeringa, Li, & Roberts, 2009). Active social participation among older adults could improve their physical and mental health (Wanchai & Phrompayak, 2019), so geriatric and policy makers have designed policies and programs to ensure social participation of older adults in the society. Previous studies have indicated that positive social resources could facilitate social participation among older adults (Li, 2020; Wang, 2011). Among these resources, intergenerational support is one of the most essential resources because older adults become more dependent on family members as they age (Li, 2020; Yu, 2017). Especially in Asian countries such as China, traditional Chinese cultural values such as Confucianism emphasizes filial piety of children towards their parents (Croll, 2006). As parent-child relationships act as the heart of family relationships (Yi & Chang, 2008), a home-based and family

support-centred caregiving system for older adults has existed from ancient times to the present. In this caregiving system, adult children take an essential role.

The sociopsychological model of successful ageing emphasizes that social participation is a key indicator of elderly health (Cachadinha, Pedro, & Fialho, 2018). Social participation refers to the activities in which older people are involved after their retirement, which include paid work, voluntary work, work to support family and community, and various organised activities (Liu & Ji, 2014; Naumann, 2006). Such activities have promoted older people's basic socialisation and self-actualisation needs, which make their lives meaningful, promote their health, and prevent their disability (Wu, 2021).

A systematic review reported that the access to financial resources, social emotional interactions, and caring support are essential promoters (Wanchai & Phrompayak, 2019). The access to financial resources could be a promotive factor for the social participation of older adults. Financial resources lay the foundation for older people to achieve high-level needs because financial resources bring them a sense of safety when they are socially engaged, which is corresponding with Maslow's hierarchy of needs theory (Chen, Lauderdale, & Waite, 2016). For instance, when living standards are enhanced, older people may tend to

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pursue self-realisation to enrich their lives, which includes increasing their participation in society (Li, 2020; Wang, 2011; Yang, 2000).

Some studies have revealed that social emotional interactions are influential on social participation of older adults. One study showed that older people who frequently communicate with their children had higher levels of social participation, because older adults were likely to share happiness and sorrow with children and obtain spiritual satisfaction (Liu & Ji, 2014). Moreover, increased interaction with friends has been found to encourage older adults to increase their involvement in society (Takeo, Gui, & Chen, 2006). Cheung and Ho (2012) explained that emotional support was associated with the social participation of older adults because relevant opportunities and encouragement were likely to help maintain their social capital; as a result, their active engagement improved.

Controversial evidence of the association between caring support and social participation has been found among older adults. Researchers found that older adults living at home with others which include children or spouses were more likely to participate in activities because those who lived with older adults offered the possibility of sharing chores; as a result, older adults may have more free time and the motivation to participate in other activities (Desrosiers, Noreau, & Rochette, 2004). However, other studies have found that older people who received caring support became more dependent on their children, and were less likely to participate in the society (Chen & Silverstein, 2000). A potential reason could be older adults who received caring support were usually those with chronic diseases or lower functional ability (World Health Organization (WHO), 2021). Thus, it could not be concluded that more caring support results in lower social participation, as older adults' health status could have been a confounding factor.

However, as people age, their social networks and interactions tend to shrink (Silverstein & Bengtson, 1997, van Tilburg, 1998). Family support becomes the primary resources for them to obtain support, especially in those countries lack of relevant social welfare for older adults (Lowenstein, Katz, & Gur-Yaish, 2007). This encourages researchers to pay attention to the relationship between family support and social participation.

As for older adults, family support mainly comes from their adult children. This intergenerational support is commonly distinguished in three types, namely financial, emotional, and caring support (Chen & Jordan, 2016; Chen & Silverstein, 2000). Financial support refers to the amount of financial transfer between generations. Emotional support belongs to an intangible construct referring to companionship and communication, which reflects intimacy and trust between parents and children. Caring support refers to tangible forms of support which include personal care and undertaking household chores.

Previous studies have demonstrated that financial and emotional support from family could promote older people's life satisfaction (Liu, 2015). Moreover, receiving support from adult children could result in better health and wellbeing (Levitt, Guacci, & Weber, 1992). Specifically in the Chinese context, it has been proved that emotional and caring support may promote subjective wellbeing of older adults (Li & Zhen, 2016). Caring support increases the life satisfaction of older people (Yu, 2017). In spite of abundant studies about how intergenerational support influencing wellbeing and life satisfaction of older people, surprisingly few of them study its impact on social participation, which is one of the essential health indicators for older adults.

In addition, wellbeing of older adults could also be mediators between intergenerational support and social participation among older adults. Wellbeing refers to individuals' evaluations of their quality of life (Diener et al., 2009). Previous studies have demonstrated that intergenerational support which covers emotional and caring support could enhance older adults' wellbeing (Li & Zhen, 2016). Older adults who received higher levels of intergenerational support may have better life satisfaction (Liu, 2015; Ward, 2008; Yu, 2017) and health (Levitt et al., 1992; Li & Zhen, 2016). Then older people with better life satisfaction may also be more proactive and willing to interact with others and

participate in social activities (Ding, 2015; Yeh & Yang, 2008). Older adults reporting better health are more likely to participate in the society (Bian et al., 2017; Li, 2020) because when their basic needs are met, they tend to explore upper needs, such as confidence and self-fulfilment through interactions (Tian, Xu, & Wu, 2021; Vogelsang, 2016). Therefore, we may consider that wellbeing, which includes self-rated health and life satisfaction, could mediate the relationship between intergenerational support and social participation.

2. Theoretical framework and hypotheses

2.1. Intergenerational support and social participation

From the perspective of social exchange theory (Homans, 1958), everyone in society has their own needs. Social interaction is a way for individuals to exchange resources. Because social relationships among individuals consist of resource exchange, and the essence of social interaction is the process of exchanging money, social recognition, and respect, interpersonal exchange could be regarded as the core of social exchange theory (Silverstein & Bengtson, 1997). From this perspective, social exchange theory could be utilised to analyse intergenerational support, which is a type of social exchange (He, 2011). Parents bring up their children, and children naturally bear the responsibility of taking care of their parents when their parents are old, which is a mutually beneficial relationship between the two generations.

The core of social exchange are resources available through social relationships and that promote active social participation (Cannuscio, Block, & Kawachi, 2003). Financial factors influence older people's social participation. Based on Maslow's hierarchy of needs, when individuals have sufficient financial security, they are likely to pursue higher levels of needs, such as involvement in society and self-realisation (Naumann, 2006).

Previous studies (e.g., Desrosiers et al., 2004) have shown that older people's interpersonal relationships and community resources are associated with active social participation. Pollak and Von DemKnebeck (2004) found that emotional support and social communication might increase social participation among older adults. Through interactions with accessible individuals, older adults' confidence and self-realisation could be enhanced (Stryker, 1980). For instance, emotional interaction and communication with others were likely to promote health of older adults, and then they were prone to pursue higher levels of needs, such as self-realisation (Li, 2020). Yu (2017) found that caring support increased older people's satisfaction with their lives because their social security was enhanced, which increased their confidence in participating in social activities.

Although previous studies have proved, financial security, emotional interactions, and instrumental support could promote social participation older adults, few studies examined whether these types of support are from adult children and analyse these kinds of support from the perspective of social exchange theory. After people retire, intergenerational relationships and family roles are likely to become their major resources for support (Li, 2020; Stryker, 1980; Yu, 2017). In China, the traditional norm of filial piety has been the principle to guide intergenerational relations, and adult children are required to take care of their parents financially and emotionally because their parents used to provide care for them (Yi & Chang, 2008; Yi & Chang, 2008). Although this traditional intergenerational contract seems to be modified with modernization, family support from adult children still plays an essential role in elderly caregiving due to a lack of community and home care services (Wu., 2021). With sufficient intergenerational resources which include financial, emotional and instrumental support, older adults are more likely to participate in social activities. We hypothesise the following.

H1. If older adults receive higher financial support, they are more likely to participate in society.

H2. If older adults receive higher emotional support, they are more likely to participate in society.

H3. If older adults receive higher caring support, they are more likely to participate in society.

2.2. Intergenerational support, self-rated health, life satisfaction, and social participation

Different types of intergenerational support are likely to affect social participation among older adults through their health. According to social exchange theory, appropriate assistance exchange benefits people's self-rated health and wellbeing (Bian et al., 2017). Studies in China have found that financial support is likely to decrease older people's physical illness and cognitive deterioration (Guo, Chi, & Silverstein, 2017; Xu, 2017). Ajrouch (2007) found that emotional support from adult children was likely to reduce the chances of contracting a chronic disease among older people and to increase the chances of improving their health (Ajrouch, 2007). In line with this study, emotional support from adult children was found to be correlated with health among older parents (Lang & Schutze, 2002). It has also been found that caring support can improve older adults' health (Yu, 2017). Previous research has shown that better health in older adults has a positive effect on their social participation (Aartsen, 2002; Maier & Klumb, 2005; Tian et al., 2021; Vogelsang, 2016). Sirven et al. (2012) demonstrated that the impact of health on participation was more significant than the impact of participation on health. Therefore, older people with better health may be more proactive and participate in social activities (Yeh & Yang, 2008).

Life satisfaction mediates the relationship between intergenerational support and social participation among older adults. It has been demonstrated that intergenerational support is positively related to levels of life satisfaction (Nguyen, Chatters, Taylor, & Mouzon, 2015). Specifically, financial support is likely to contribute to older people's life satisfaction (Li, 2020; Liu, 2014). With sufficient material resources, older people are more likely to participate in society and find meaning in living (Li, 2020; Wang, 2011). Positive interactions in intergenerational relationships also lead to better life satisfaction for parents, while negative relationships may have detrimental effects (Ward, 2008). Previous studies also found that children's caring support improved older people's life satisfaction (Chen & Jordan, 2016; Yu, 2017). Moreover, older people with better life satisfaction may be more proactive and willing to interact with others and participate in social activities (Yeh & Yang, 2008). When older people's life satisfaction improved, they tended to participate more in society (Ding, 2015). In general, previous researchers have found with adequate financial resources, positive emotional interactions and caring, older adults are likely to have better health and life satisfaction; as a result, they have more confidence to participate in the society. Therefore, we hypothesise the following.

H4. If older adults receive higher levels of financial support, they are more likely to report better health and then, they are more likely to participate in the society.

H5. If older adults receive higher levels of emotional support, they are more likely to report better health and then, they are more likely to participate in the society.

H6. If older adults receive higher levels of caring support, they are more likely to report better health and then, they are more likely to participate in the society.

H7. If older adults receive higher levels of financial support, they are more likely to report better life satisfaction and then, they are more likely to participate in the society.

H8. If older adults receive higher levels of emotional support, they are more likely to report better life satisfaction and then, they are more

likely to participate in the society.

H9. If older adults receive higher levels of caring support, they are more likely to report better life satisfaction and then, they are more likely to participate in the society.

The proposed model is shown in Fig. 1.

3. Methods

3.1. Research design

The dataset of the China Survey of Elderly Health Influencing Factors (CLHLS) was utilised in this study, which is based on a long-term household follow-up survey of adults aged 65 years and above as well as their adult children in 23 provinces in China. This dataset contains information regarding the socioeconomic backgrounds of older people, their health characteristics, and social participation. The baseline survey was conducted in 1998, followed by seven follow-ups. This dataset has been shown to be reliable and valid, and the results of relevant studies that utilised these data have been highly recognised. This study applied the dataset resulting from the most recent follow-up survey in 2018. In this study, data were collected on 3142 older parents over 65 years of age.

3.2. Measures

Based on previous research that utilised the CLHLS dataset (Huang & Fu, 2021; Ng, Tey, & Asadullah, 2017; Zhang et al., 2021), we chose a set of variables for the data analysis, as shown in Table 1.

3.2.1. Dependent variables: social participation

The dependent variable in this study was older adults' social participation. Based on social exchange theory, social participation includes activities organised by the community or neighbourhood (Homans, 1958). In a recent study (Zhu, 2021) that utilised this dataset, the following question was asked: "Do you perform the following activities regularly?" The activities included outdoor activities, playing cards and Mah-jong, and organised social activities. This question met the requirements for studying older people's social participation, so it was utilised in this research. Those who participated in at least one kind of activity were coded "yes (1)", while those did not participate in any of these activities were coded "never (0)." If they participated in at least one type of activity, they were considered to interact with others and be involved in society.

3.2.2. Independent variables

Regarding the choice of three kinds of intergenerational support, previous studies utilised the following questions to measure financial support, emotional support, and caring support, respectively: "How much money do children give their parents?"; "When you have difficulties, who do you turn to?"; and "When you are sick, who will take care of you?" (Li, 2020; Li, Song, & Feldman, 2009; Liu, 2014). Financial support was assessed by asking, "How much money (including cash and value of materials) did you get last year from your children and their spouses, both living and not living with you?" For each individual, all of their children were asked, and the total values across all children represented the amount of financial assistance received, which was transformed into its logarithmic. Caring support was assessed by asking, "When you are sick, who usually takes care of you?" Helpers who were children were coded "1", and others were coded "0". Emotional support was assessed by asking, "To whom do you usually talk the most frequently in daily life?" Children were coded "1" and others were coded "0."

3.2.3. Mediators

This study used self-rated health and life satisfaction to measure

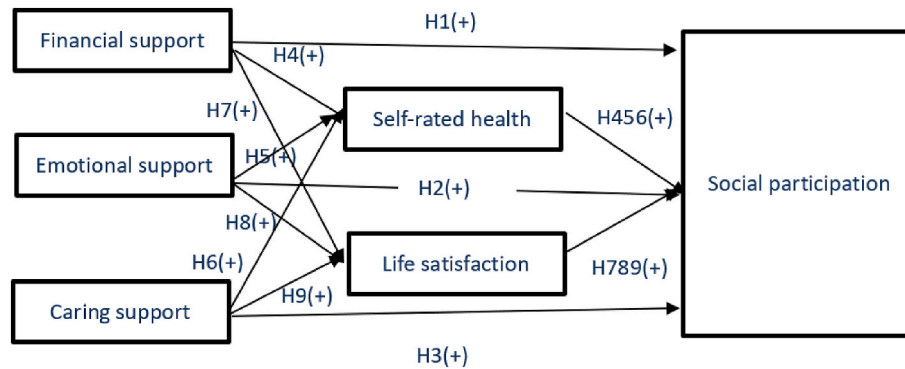


Fig. 1. Proposed Hypothetical Model.

Table 1 Description of study variables.

Variables	Descriptions
Social Participation	0 = No, 1 = Yes
Financial Support	0 = No, 1 = Yes
Emotional Support	0 = No, 1 = Yes
Caring Support	0 = No, 1 = Yes
Self-rated Health	1 = Not Very Good, 2 = Not Good, 3 = Fair, 4 = Good, 5 = Very Good
Life Satisfaction	1 = Not Very Good, 2 = Not Good, 3 = Fair, 4 = Good, 5 = Very Good
Age	Calculated by 2018 minus the respondent's birth year.
Gender	0 = Male, 1 = Female
Minority	1 = Han, 0 = Other
Education	Years of Receiving Education
Hukou	0 = Urban, 1 = Rural
Marital Status	0 = Did not have a Partner, 1 = Have a Partner
Pension	The Reception of Aging Pension
Number of Child	The Number of Children
ADL	1 = Receives no assistance 2 = Receives assistance for part 3 = Receives complete assistance

older people's wellbeing. Self-rated questions on health are commonly used in health interviews and surveys. Previous studies in the literature have demonstrated that it is a strong and independent predictor of various health outcomes (Idler & Kasl, 1991; Kuusio, Heponiemi, Aalto, Sinervo, & Elovainio, 2012; Riise, Riise, Natvig, & Daltveit, 2014) and healthcare utilisation (Andersen, Christensen, & Frederiksen, 2007; Fleishman & Cohen, 2010; Veenstra, Moum, & Garratt, 2006). Compared with physical limitations, self-rated health better represents the general health status of older adults (Idler & Benyamini, 1997). Self-rated health was measured by asking, "How do you rate your health at present?" and respondents were given on a 5-point scale ranging from 1 (not very good) to 5 (very good).

The reason for choosing life satisfaction is that it is an important indicator of subjective wellbeing, and a common method of measuring the mental health of older adults (Zeng & Gu, 2002). Life satisfaction was measured by asking, "How do you rate your life at present?" which was utilised in studies exploring this dataset (Cheng & Yan, 2021; Li, Wu, Selbæk, Krokstad, & Helvik, 2017). Respondents were given on a 5-point scale ranging from 1 (not very good) to 5 (very good).

3.2.4. Control variables

Based on previous studies in the literature (Bian et al., 2017; Ofstedal, Reidy, & Knodel, 2004; Silverstein, Cong, & Li, 2006), we selected sociodemographic factors as control variables that affect the participation of older people. Control variables included age, household registration, education, marriage, minority, pension, number of children and their activities of daily living (ADL). Table 1 presents the control

variables, the original questions in the CHLHS 2018 questionnaire, and the codes used in this research. To facilitate the data analysis, the variables of minority and marital status were recoded. Ethnicity was recoded as "1 = Han" and "0 = other minorities". Household registration was coded as "1 = Urban" and "0 = Rural". Marital status was divided into "1 = have a partner" and "0 = do not have a partner". Pension was measured by asking "How much money did you earn each month?" and six ADL items included dressing, grooming, toileting, bathing, ambulation (i.e., walking, climbing stairs) and transfer (i.e., chair to bed, chair to toilet). The participants were asked to indicate the level of assistance provided to their older relatives for each of the activities. The responses ranged from none (0) to a lot (3).

3.3. Logistic model

The outcome variable "social participation" and the mediators "self-rated health" and "life satisfaction" were coded "0" and "1" as dummy categorical variables. Accordingly, we applied the logistic regression model in this research and used the method of maximum likelihood estimation (MLE).

The probability of Y = 1 is P, and 0 means an event that does not occur; P_n and 1-P_n represent the probability of older adults's social participation and non-participation, respectively. β₁ represents the regression coefficient of each factor, and X_i represents relevant factors affecting social participation: caring, financial, and emotional inter-generational support. The specific model was as follows:

$$Y = \ln[P_n / (1 - p_n)] = \alpha + \sum_{i=1}^n \beta_i x_i \tag{Model 1}$$

If β is significant, intergenerational support affects social participation.

To test Hypothesis 4-9, we constructed Models (2), (3), and (4):

$$y_{it} = \ln[P_{it} / (1 - p_{it})] = \alpha_0 + \sum_{i=1}^{it} a_1 x_{it} \tag{Model 2}$$

$$m_{it} = \ln[P_{it} / (1 - p_{it})] = b_0 + \sum_{i=1}^{it} \beta_1 x_{it} \tag{Model 3}$$

$$y_{it} = \ln[P_{it} / (1 - p_{it})] = c_0 + \sum_{i=1}^{it} c_1 x_{it} + \sum_{i=1}^{it} c_2 x_{it} \tag{Model 4}$$

According to Wu, Cohen, Cong, Kim, and Peng's (2021) method of analysing mediating effects, if a₁, β₁ and c₂ are significant at the same time, a partial mediating effect exists. If c₁ is not significant but b₁ and c₂ are significant, then the total mediating effect exists. If c₁ is significant, and b₁ and c₂ share the same sign with c₁, then a partial mediating effect exists. If β₁ and c₂ share the opposite sign with c₁, the masking effect exists.

4. Results

4.1. Descriptive analysis

Table 2 presents the demographic characteristics of the study population. Most older adults were Han from rural areas. The percentage of older adults who attended social activities was 70.37%, which was much higher than that of those who did not attend social activities. The percentage of those with good life satisfaction was much higher than that of those who did not report good life satisfaction. Notably, although more than half of the older people received caring support from their children, less than half thought they perceived emotional support from their children based on the figures (see Table 3).

4.2. Multivariate analysis

Binomial logistic regression models (Models 1, 2, and 3) were applied to determine the effects of older people’s intergenerational support—caring support, financial support, and emotional support—and their demographics on the likelihood that they participated in social activities. In Model 1, caring support was not significantly influenced social participation. This could be explained that older adults may do more chores if they live with their children instead of receiving support, so these older adults have less time to participate in society (Feldman & Guo, 2009). When older adults were older, their physical functions may be more vulnerable; as a result, although receiving caring support, they may be less likely to participate in the society. According to Model 2, older people receiving financial support had 1.046 times higher odds of participating in social activities than those who did not receive financial support. This result is consistent with previous studies that financial security enables older adults to pursue higher levels of fulfilment (Li, 2020; Wang, 2011), especially when they receive higher financial support from their children (Naumann, 2006). In Model 3, compared with older people without the emotional support of their adult children, those who received emotional support had 1.934 times higher odds of participating in social activities. This result is in line with previous findings that emotional support and personal contacts in intergenerational relationships promote older adults’ active social engagement (Li, 2020; Stryker, 1980; Yu, 2017). To sum up, among different types of intergenerational support, the prediction of financial

Table 2
Descriptive analyses of variables.

Variables		All N = 3142
Mean or Proportion		83.830(11.618)
Age		
Gender	Male	42.3%
	Female	57.7%
Ethnicity	Han	94.88%
	Else	5.12%
Education	Yeas of Education	2.697(3.498)
Hukou	Urban	16.49%
	Rural	83.51%
Marital Status	Partnered	44.49%
	Non-partnered	55.51%
Pension		655.513(1051.492)
Number of Child		4.187(1.926)
ADL		1.152 (0.367)
Caring support	Yes	63.11%
	No	36.89%
Financial support		12698.56(46415.56)
Emotional support	Yes	38.67%
	No	61.33%
Self-rated Health	Good	48.15%
	Not Good	51.85%
Life Satisfaction	Good	71.45%
	Not Good	28.55%
Social Participation	Yes	70.37%
	No	29.63%

Table 3
Associations Between intergenerational Support and Social Participation.

Variables	Model1	Model2	Model3
Caring support	1.292 (0.152)		
Financial support		1.046 ^c (.013)	
Emotional support			1.934 ^c (0.189)
Age	0.943 ^c (0.005)	0.944 ^c (0.005)	0.948 ^c (0.005)
Gender	0.889 (0.090)	0.889 (0.090)	0.909 (0.093)
Minority	1.049 (0.216)	1.045 (0.214)	1.062 (0.217)
Education	1.047 ^a (0.017)	1.045 ^a (0.017)	1.048 ^b (0.017)
Hukou	1.237 (0.165)	1.236 (0.165)	1.262 (0.169)
Marital Status	0.916 (0.115)	0.807 (0.092)	0.951 (0.109)
InPension	1.050 (0.037)	1.091 (0.037)	1.059 (0.036)
Number of Child	1.051 (0.026)	1.053 (0.026)	1.063 ^a (0.027)
ADL	0.121 ^c (0.019)	0.120 ^c (0.019)	0.129 ^c (0.021)
_cons	1536.277 ^c (1034.473)	1264.344 ^c (852.774)	750.017 ^c (512.320)
N	3142	3142	3142
Pseudo. R ²	0.193	0.195	0.204

Note: Pseudo. R² here refers to the effect size of the whole model with all the predictors and covariates.

^a p < 0.01.

^b p < 0.005.

^c p < 0.001.

support and the prediction of emotional support were statistically significantly associated with social participation. These findings indicated that if older adults received more financial and emotional support, they were more likely to participate in social activities.

4.3. Robustness check

To ensure the results were not sensitive to model specifications, we ran a robustness check for the main predictors using a method developed by Young and Holsteen (2017) (Table 4). For a given predictor, the estimated coefficients for all model specifications were calculated, which yielded the distribution of all estimates. The coefficients of financial and emotional support from Table 4. ($B = 1.05, p < 0.001; B = 1.93, p < 0.001$) suggested that the findings regarding the significance of critical predictors (financial and emotional support) in our analyses were robust to different combinations of covariates.

Based on the characteristics of the dependent variable, we also utilised linear regression models (Table 5) and order probit models (Table 6) to test robustness. The results demonstrated that financial and emotional support had positive associations with social participation in both the linear regression models ($B = 0.007, p < 0.001; B = 0.105, p < 0.001$) and the order probit models ($B = 0.027, p < 0.001; B = 0.378, p < 0.001$).

Table 4
Robust check.

Variables	Model1	Model2	Model3
Caring support	1.292 (0.152)		
Financial support		1.046 ^a (.013)	
Emotional support			1.934 ^a (0.191)
_cons	1536.277 ^a (1044.831)	1264.344 ^a (852.747)	750.017 ^a (512.320)
N	3142	3142	3142
Pseudo. R ²	0.193	0.195	0.204

*p < 0.01, **p < 0.005.

^a p < 0.001.

Table 5
Robust check with regression model.

Variables	Model1	Model2	Model3
Caring support	0.041 (0.018)		
Financial support		0.007 ^a (.002)	
Emotional support			0.105 ^a (0.015)
_cons	1.880 ^a (0.106)	1.850 ^a (0.106)	1.751 ^a (0.106)
N	3142	3142	3142
Pseudo. R ²	0.229	0.231	0.240

*p < 0.01, **p < 0.005.
^a p < 0.001.

Table 6
Robust check with oprobit model.

Variables	Model1	Model2	Model3
Caring support	0.147 (0.067)		
Financial support		0.027 ^a (.007)	
Emotional support			0.378 ^a (0.056)
_cons	-4.340 ^a (0.015)	-4.231 ^a (0.387)	-3.930 ^a (0.392)
N	3142	3142	3142
Pseudo. R ²	0.192	0.195	0.203

*p < 0.01, **p < 0.005.
^a p < 0.001.

4.4. Heterogeneity analyses

In this study, gender and rural–urban differences in the relationships between intergenerational support and social participation were analysed. Demographic or socioeconomic factors may also influence older people’s social participation (Bian et al., 2017). Many previous studies have shown the effects of gender on the association between intergenerational support exchange and wellbeing (Choi, 2020; Li et al., 2009; Silverstein, 2012). Therefore, we examined whether gender differences existed in the association between intergenerational support and social participation. Regarding urban–rural differences, adult children in undeveloped areas migrate to cities to find jobs (Goldstein, Ku, & Ikels, 1990), which has led to geographic separations from their older parents. Therefore, the lack of daily care by adult children may negatively affect the quality of life of rural older adults (He, 2011; Li, Zhao, & Lin, 2013). However, if their adult children provide with more financial and emotional support, older adults’ health could be improved (Palmer & Deng, 2008), which may affect their social participation.

As shown in Table 7, caring support was not significantly associated with social participation in the male group ($B = 1.05, p > 0.01$) or in the female group ($B = 1.05, p > .01$), whereas emotional support was significantly associated with social participation in both groups ($B = 1.85, p < 0.000; B = 1.98, p < 0.000$). In the male group, the influence of financial support was not significant ($B = 1.03, p > 0.01$), whereas it was significant in the female group ($B = 1.05, p < 0.005$). This is consistent with previous studies that older women were more likely to depend on

Table 7
Gender difference.

Variables	Males = 1329			Females = 1813		
	Model1	Model2	Model3	Model4	Model5	Model6
Caring support	1.049 (0.187)			1.466 (0.231)		
Financial support		1.032 (0.020)			1.057 ^a (0.017)	
Emotional support			1.854 ^b (0.297)			1.979 ^b (0.248)
_cons	1010.303 ^b (1050.523)	864.327 ^b (900.909)	454.793 ^b (482.464)	1592.121 ^b (1269.122)	1239.281 ^b (990.065)	852.267 ^b (686.965)
N	1329	1329	1329	1813	1813	1813
Pseudo. R ²	0.150	0.195	0.204	0.214	0.216	0.224

*p < 0.01.
^a p < 0.005.
^b p < 0.001.

their children for financial support than older men due to traditional labour division (Choi, Jeon, & Jang, 2020; Ofstedal et al., 2004). Therefore, when older women received more financial support, their autonomy will increase and they may be more likely to participate in the society.

The effects of caring support were not significant in rural or urban areas. The effects of financial support and emotional support were significant only in the urban group in Table 8. Compared with older rural people, the social participation of urban groups was more likely to be affected by financial and emotional support. Many urban older people have less children and are often away from their children, and it is more common for rural older people to live with their children (Zhou et al., 2021). As a result, compared with rural older adults, urban people are more likely to depend on themselves. If urban older adults receive more support from adult children, they might obtain more opportunities to participate in the society.

4.5. Mediating effect

As shown in Table 9, financial support was positively related to social participation ($B = 1.046, p < .001$, Model 1). The results showed that financial support was positively associated with self-rated health ($B = 0.970, p < .01$, Model 2), and self-rated health was positively related to social participation ($B = 1.296, p < 0.01$, Model 3). These results indicated that self-rated health had a partial mediating effect on the relationship between financial support and social participation. This result was consistent with previous studies which showed that financial support played an active role in promoting older people’s health (Guo et al., 2017; Liu, 2014; Li, 2020; Xu, 2017), and their better health led to better social participation (Sirven & Debrand, 2012). However, in our study, based on Models 1, 4, and 5, life satisfaction did not have a mediating effect between financial support and social participation, which indicated that financial support did not affect social participation through life satisfaction; instead, it directly affected social participation. This finding could be explained by the fact that when people’s basic needs are met, they tend to fulfil higher levels of needs, such as self-realisation (Li, 2020; Wang, 2011).

As shown in Table 10, emotional support was positively related to social participation ($B = 1.934, p < .001$, Model 1). The results showed that emotional support was positively associated with life satisfaction ($B = 0.686, p < .001$, Model 4), and life satisfaction was positively related to social participation ($B = 1.983, p < .001$, Model 5). These findings indicated that life satisfaction had a partial mediating effect on the relationship between emotional support and social participation. This result is in line with Nguyen, Chatters, Taylor, and Mouzon’s (2015) study, which found that emotional support by adult children was positively associated with older people’s life satisfaction. Then better wellbeing could contribute to more proactive social participation (Yu, 2017). However, in the present study, self-rated health did not mediate the association between emotional support and social participation. Therefore, emotional support did not affect the older adults’ social participation through self-rated health; instead, it

Table 8
Urban-rural difference.

Variables	Urban = 518			Rural = 2624		
	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Caring support	1.173 (0.155)			1.752 (0.460)		
Financial support		1.045 ^a (0.015)			1.054 (0.028)	
Emotional support			1.984 ^b (0.216)			1.727 (0.411)
_cons	2204.428 ^b (1392.636)	1745.493 ^b (1108.037)	1043.268 ^b (669.857)	3958.324 ^b (1634.234)	3140.388 ^b (4939.639)	2183.165 ^b (2018.162)
N	518	518	518	2624	2624	2624
Pseudo. R ²	0.190	0.192	0.202	0.202	0.215	0.215

*p < 0.01.
^a p < 0.005.
^b p < 0.001.

Table 9
Self-rated health and life satisfaction mediating the association between financial support and social participation.

Variables	Model1	Model2	Model3	Model4	Model5
	Social Participation	Self-rated health	Social Participation	Life satisfaction	Social Participation
Financial support	1.046 ^c (0.013)	0.970 ^b (0.010)	1.048 ^c (0.013)	0.995 (0.011)	1.047 ^c (0.013)
Self-rated health			1.296 ^b (0.118)		
Life satisfaction					1.265 (0.126)
Age	0.944 ^c (0.005)	1.011 (0.004)	0.944 ^c (0.005)	1.018 ^c (0.005)	0.944 ^c (0.005)
Gender	0.889 (0.090)	0.915 (0.744)	0.894 (0.901)	1.138 (0.102)	0.885 (0.090)
Minority	1.045 (0.214)	1.262 (0.209)	1.025 (0.211)	0.825 (0.156)	1.053 (0.216)
Education	1.045 ^b (0.017)	1.023 (0.013)	1.046 ^c (0.017)	1.001 (0.014)	1.047 ^a (0.017)
Hukou	1.236 (0.165)	0.988 (0.109)	1.239 (0.166)	0.958 (0.118)	1.240 (0.166)
Marital Status	0.807 (0.092)	0.824 (0.075)	0.818 (0.094)	1.110 (0.110)	0.804 (0.092)
InPension	1.091 (0.037)	1.070 ^a (0.030)	1.056 (0.037)	1.143 ^c (0.035)	1.054 (0.037)
Number of Child	1.053 (0.026)	0.977 (0.020)	1.054 (0.026)	0.991 (0.022)	1.053 (0.026)
ADL	0.120 ^c (0.019)	0.430 ^c (0.051)	0.125 ^c (0.026)	0.586 ^c (0.067)	0.121 ^c (0.019)
_cons	1264.344 ^c (852.774)	0.856 (0.461)	1165.08 ^c (787.994)	0.565 (0.336)	1163.879 ^c (786.625)
N	3142	3142	3142	3142	3142
Pseudo. R ²	0.195	0.020	0.197	0.015	0.196

^a p < 0.01.
^b p < 0.005.
^c p < 0.001.

Table 10
Self-rated health and life satisfaction mediating the association between emotional support and social participation.

Variables	Model1	Model2	Model3	Model4	Model5
	Social Participation	Self-rated health	Social Participation	Life Satisfaction	Social Participation
Emotional support	1.934 ^c (0.189)	0.934 (0.071)	1.943 ^c (0.192)	0.686 ^c (0.057)	1.983 ^c (0.197)
Self-rated health			1.287 ^a (0.118)		
Life satisfaction					1.341 ^b (0.135)
Age	0.948 ^c (0.005)	1.011 (0.004)	0.947 ^c (0.005)	1.015 ^b (0.005)	0.947 ^c (0.005)
Gender	0.909 (0.093)	0.905 (0.074)	0.914 (0.005)	1.124 (0.100)	0.905 (0.092)
Minority	1.062 (0.217)	1.237 (0.204)	1.042 (0.218)	0.815 (0.154)	1.071 (0.223)
Education	1.048 ^b (0.017)	1.023 (0.013)	1.047 ^a (0.017)	1.009 (0.014)	1.049 ^b (0.017)
Hukou	1.262 (0.169)	0.981 (0.108)	1.264 (0.170)	0.952 (0.118)	1.264 (0.017)
Marital Status	0.951 (0.109)	0.806 (0.074)	0.966 (0.113)	1.002 (0.102)	0.952 (0.112)
InPension	1.059 (0.036)	1.078 ^a (0.030)	1.053 (0.037)	1.139 ^a (0.035)	1.050 (0.037)
Number of Child	1.063 ^b (0.027)	0.973 (0.020)	1.064 (0.026)	0.990 (0.023)	1.063 (0.027)
ADL	0.129 ^c (0.021)	0.431 ^c (0.051)	0.124 ^c (0.021)	0.560 ^c (0.065)	0.131 ^c (0.021)
_cons	750.017 ^c (512.320)	0.768 (0.418)	698.776 ^c (478.498)	0.930 (0.562)	663.428 ^c (454.483)
N	3142	3142	3142	3142	3142
Pseudo. R ²	0.204	0.018	0.206	0.020	0.201

^a p < 0.01.
^b p < 0.005.
^c p < 0.001.

directly affected social participation (see Table 10).

In order to examine potential reciprocal associations between self-rated health, life satisfaction and social participation, results were checked with non-recursive models in Table 11. Relevant results indicated that the coefficient from self-rated health to social participation ($B = 1.296$, $p < .01$, Model 3) was stronger than the other way around ($B = 1.222$, $p < .01$, Model 16), so the mediating effect of self-rated health on the association between financial support and social

participation existed. The coefficient from life satisfaction to social participation was insignificant (Model 17), so only the path way from life satisfaction to social participation existed. Thus, the mediating effect of life satisfaction on the association between emotional support and social participation existed.

Table 11
Pathways from Social Participation to Self-rated health and Life Satisfaction.

Variables	Model 16	Model 17
	Self-rated health	Life satisfaction
Social participation	1.222*** (0.163)	1.128 (0.081)
Age	0.921*** (0.006)	0.923*** (0.006)
Gender	1.364* (0.173)	1.137* (0.170)
Minority	1.087 (0.279)	1.137 (0.291)
Education	1.042 (0.022)	1.043 (0.022)
Hukou	1.418* (0.229)	1.423* (0.229)
Marital Status	1.283 (0.191)	1.251 (0.186)
InPension	1.012 (0.044)	1.104*** (0.044)
Number of Child	1.059* (0.030)	0.058 (0.022)
ADL	0.077*** (0.013)	0.074*** (0.012)
_cons	0.789*** (0.543)	0.565*** (0.336)
N	3142	3142
Pseudo. R ²	0.032	0.031

*p < 0.01, **p < 0.005, ***p < 0.001.

5. Discussion

Although previous researchers have demonstrated the influence of social support on social participation among older adults, few researchers have specifically considered intergenerational support. The current study aimed to fill this gap in the research. After controlling for sociodemographic variables, the effect of caring support was not significantly associated with social participation, while the effects financial and emotional support were significantly associated with older people's social participation, based on a confidence interval of 99%. Although caring support was not significantly associated with social participation in either the male group or the female group, emotional support affected both groups. Financial support was significantly related to social participation only in the female group. Regarding the urban and rural groups, caring support was not significantly related to social participation in the two groups. The effects of financial support and emotional support on social participation were significant in the urban group but not in the rural group. Regarding the mediating effect, the findings showed that self-rated health mediated the relationship between financial support and social participation and that life satisfaction mediated the relationship between emotional support and social participation.

The findings of the current study indicate how different kinds of intergenerational support influence older people's social participation. In unique social exchanges, financial and emotional supports are likely to improve and promote older people's social participation, which supports Li's (2020) findings. When financial standards are enhanced, older people may participate more in the society to obtain self-realisation (Li, 2020; Wang, 2011; Yang, 2000). Through emotional exchange, older adults could obtain encouragements and satisfaction; as a result, their motivation to participate in social activities may enhance (Cheung & Ho, 2012). However, the effect of caring support is non-significant. This could be explained that older adults who needed caring support were usually those with chronic diseases or lower functional ability (World Health Organization (WHO), 2021). Whereas for others, caring support might still be beneficial for their social participation. Thus, a possible moderator could be the physical conditions of different older adults.

As for results of gender differences in associations, emotional support significantly influenced social participation in both female and male groups. This is consistent with previous studies that emotional support could bring older people a sense of confidence and encouragement (Liu, Liang, & Gu, 1995), so they will be more likely to interact with their surroundings and be engaged in the society. Financial support significantly influenced social participation only in the female groups. Previous studies have demonstrated that because older women have fewer economic resources than older men, older women usually relied on adult children for financial assistances (Rudkin, 1993). Therefore, receiving

more material support could bring them a sense of autonomy and control of life, and they may try to pursue personal values through social interactions.

As for urban-rural differences, effects of caring support were not significant in rural or urban areas while those of financial support and emotional support were significant only in the urban group. The potential reason could be many rural older adults might live with their children, so these older adults are more likely to interact with their adult children (Zhou et al., 2021) and more dependent on family for support (Luo, Wu, Qian, Cao, & Ren, 2017). As for urban older adults, they may rely more on themselves. If adult children of urban older adults support them more, they may have more opportunities to participate in the society because social resources and opportunities are relatively greater in urban areas (He, 2011; Li et al., 2013).

Regarding the mediating effects, financial support significantly improved older people's self-rated health and further improved their social participation, which supports previous studies that showed financial support was likely to decrease older people's negative mental status (Guo et al., 2017; Xu, 2017) and contribute to their wellbeing (Jia & He, 2021; Li, 2020; Liu, 2014; Yu, 2017). In the Chinese context, poverty is still prevalent among older adults, especially those receiving a pension can often only meet their basic needs (Xia, van Wijngaarden, Huijsman, & Buljac-Samarđić, 2022). In some rural areas, many older adults have to continue to work to make a living (Gruijters, 2017). If these older adults are able to receive practical support from their children, they will be more effective in utilising these resources and have less physical and psychological issues (Viseu et al., 2018), which may result in better health. Then older people with better health may be more active and willing to participate in social activities (Yu, 2017).

In addition, our findings showed that emotional support significantly improved older people's life satisfaction and led to better social participation. In today's modern world, adult children may live far away from their parents. Instead of providing caring support, adult children pay much attention to emotional support (Guo et al., 2009, 2018). Many Chinese older adults reported their children were filial as they usually paid a visit or contact with them (Guo, Stensland, Li, & Dong, 2020). These findings are in line with previous studies that showed that emotional support decreased depressive symptoms (Ajrouch, 2007; Guo et al., 2017; Lang & Schutze, 2002; Xu, 2017) and enhanced life satisfaction (Nguyen et al., 2015; Yu, 2017). Consequently, better life satisfaction was positively related to increased social participation (Aartsen, 2002; Maier & Klumb, 2005; Tian et al., 2021; Vogelsang, 2016).

This study has some limitations. Although some significant associations between aspects of intergenerational support and social participation were demonstrated, the data utilised were cross-sectional, so it might be difficult to generalise a causal relationship between intergenerational support and social participation to other study populations. Future studies could explore relationships based on longitudinal data.

Conclusions and implications

This study assessed how different types of intergenerational support the older people in our sample population received from their children were associated with their social participation; whether rural-urban differences and gender differences existed in these associations; and whether self-rated health and life satisfaction mediated these associations. Financial and emotional support were significantly associated with older people's social participation. As for gender differences, financial support was significantly related to social participation only in the female group. Regarding the urban and rural groups, the effects of financial support and emotional support on social participation were only significant in the urban group. Regarding the mediating effect, self-rated health mediated the relationship between financial support and social participation and that life satisfaction mediated the relationship between emotional support and social participation.

Theoretically, this study not only considered social capital, but also

utilised needs theory and social exchange theory to examine the relationship of intergenerational support to older people's social participation. In Maslow's hierarchy of needs, social participation is among the greatest needs of individuals, and financial and emotional support may contribute to this need. As a means of social exchange, intergenerational support may assist in meeting this need. Therefore, these findings supplement previous research on social support and older people's social participation. No previous study has examined the direct effects of intergenerational support on the social participation of older adults.

The findings of this study have practical implications for gerontological service providers. In considering older people's social participation, policymakers should direct their attention to their most important relationship, that of intergenerational support, in which older adults obtain caring, emotional, and financial support. Older adults who receive this support are likelier to achieve higher-level needs, such as self-actualisation. Our findings regarding the mediating effects of well-being on the relationship between intergenerational support and social participation imply that this mechanism indeed exists. As such, relevant measures should be considered to empower older adults with feasible financial support and emotional interactions from their children. In the community, adult children should be encouraged to pay more attention to their older parents and offer them assistance. Accordingly, health conditions and life satisfaction of older adults might be enhanced, which may save medical expenses for the family and promote family harmony. As a result, better health could further contribute to the active aging of older adults. Last but not the least, as for older adults who received little intergenerational support, local community should pay attention to them and provided support when they are in need.

Statement of ethical approval

All research subjects participated voluntarily and provided informed consent to participate in the study.

CRediT authorship contribution statement

Yiqi Wangliu: Conceptualization, Methodology, Software, Formal analysis, Writing – original draft, Writing – review & editing.

Declaration of competing interest

I have no known conflict of interest to disclose.

Data availability

Data will be made available on request.

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