

# Social trust and emotional health in older adults in China: The mediating and moderating role of subjective well-being and subjective social status

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## Research article

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## Abstract

**Background** China is becoming an aging society. The emotional health of the elderly is gaining importance. Social trust is an important factor affecting emotional health, but existing studies have rarely considered the various effects of different types of social trust on elderly emotional health. Few studies have analysed the role of subjective well-being and subjective social status in the relationship between social trust and elderly emotional health.

**Methods** Using the data of the China Labor-force Dynamics Survey 2016 (CLDS 2016) and regression models, this study selected 3767 respondents aged 60 years and above to analyse the impact of social trust on their emotional health. Social trust was divided into three categories: trust in family members, trust in friends, and trust in neighbours. The Center for Epidemiologic Studies Depression Scale (CES-D) was used to assess emotional health, and the respondents' self-assessment scores were adjusted.

**Results** Trust in family members was significantly and positively associated with emotional health (coefficient = 2.854,  $P < 0.01$ ) and subjective well-being (coefficient = 0.189,  $P < 0.01$ ). Trust in friends was significantly and positively associated with emotional health and subjective well-being (coefficient = 1.703,  $P < 0.01$ ; coefficient = 0.171,  $P < 0.01$ , respectively). Trust in neighbours was significantly and positively associated with emotional health and subjective well-being (coefficient = 1.461,  $P < 0.01$ ; coefficient = 0.186,  $P < 0.01$ ; respectively). Subjective well-being effectively reduced the impact of social trust in family, friends, and neighbours on the emotional health of the elderly by 0.378, 0.341, and 0.370, respectively. Trust in family members, friends, and neighbours, significantly and positively affected respondents' subjective social status (coefficient = 0.115,  $P < 0.05$ ; coefficient = 0.095,  $P < 0.05$ ; coefficient = 0.121,  $P < 0.01$ , respectively). Subjective social status effectively reduced the impact of social trust in family, friends, and neighbours on the emotional health of the elderly by 0.092, 0.076, and 0.096, respectively. The positive relationship between trust in family members and emotional health was weakened by subjective well-being, and that between trust in neighbours and emotional health was weakened by subjective social status.

**Conclusions** Family relationships play an important role in maintaining the emotional health of the elderly. In response to population ageing, more social policies must be introduced to care for the elderly and help them lead a happy and satisfactory life.

## Background

Aging is an important social process that many developing countries are experiencing. China is the world's most populous country, and its elderly population is growing [1]. By 2019, 18.1 per cent of China's population was over the age of 60 years. Over the past 40 years, China has experienced rapid urbanisation and modernisation, along with profound changes in people's interpersonal relationships and lifestyles [2, 3]. However, compared to developed countries, China still has many deficiencies in elderly care and health welfare [4, 5]. The mental health of the elderly has especially been neglected, and only a small number of older people seek help and treatment for psychological problems [6, 7]. Therefore, an examination of the mental health of the elderly and the factors influencing it is of great significance for improving their overall health and quality of life.

The emotional health of the elderly is affected by many factors. In China, which is influenced by traditional family values, many older people live with their children and help in taking care of grandchildren and in family affairs [8, 9]. A good relationship with family members is, therefore, an important factor affecting elderly emotional health. For example, Tang et al. [10] found that Chinese older adults living with both a spouse and adult children reported better mental health than those living alone. Using a 1992 baseline survey of the Beijing Multidimensional Longitudinal Study on Aging, Chen and Silverstein [11] reported that providing instrumental support to children and satisfaction with children directly improved older Chinese parents' well-being. In contrast, empty-nest elderly received less social support and were more likely to suffer from depression than those who lived with adult children [12–14]. Additionally, although social support has been shown to have a positive effect on maintaining the mental health of the elderly [15, 16], few studies have compared the effects of different types of social trust on the emotional health of the elderly. In China, most social interactions of the elderly are characterized by circle distribution, in which the core is the family life circle, followed by the circle of close friends, and the outermost circle of neighbours or strangers. Older people have different levels of social trust in different groups, which may have varying effects on their emotional health. Therefore, this study compared the differences in the impact of three types of social trust, namely trust in family, trust in friends, and trust in neighbours, on the emotional health of the elderly.

Studies have confirmed that subjective well-being and subjective social status are closely related to elders' mental health [17, 18]. Subjective well-being and subjective social status reflect a person's overall perception of life conditions, which are influenced by many factors, such as income and social trust [18–21]. A happy life may also have an important protective effect on the mental state of older people. Subjective social status has also been shown to be an important factor affecting emotional health [22, 23]. For instance, Hwang et al. [24] revealed that elderly individuals who reported a higher level of socioeconomic status were less likely to engage in risk behaviours, and were therefore more likely to have better health status. In this study, we considered subjective well-being and subjective social status as important moderating and mediating variables, and analysed the roles and effects of these two factors in the relationship between social trust and emotional health of the elderly in China.

Figure 1 shows the theoretical framework of the present study. This study analysed the impact of social trust on the emotional health of the elderly in China. Social trust reflects the elderly respondents' perception of social relationships. In general, people are more likely to turn to someone they trust, or in whom they can confide, for emotional health support. In terms of the influence path of social trust on emotional health, individual subjective well-being and subjective social status may mediate or moderate the relationship between social trust and emotional health. On the one hand, social trust may affect an individual's subjective well-being and social status, thus affecting their emotional health. On the other hand, their subjective well-being and subjective social status may also strengthen or weaken the impact of social trust on emotional health. This study attempted to verify these influence paths.

## Methods

### Data and sample

This study used data from the 2016 wave of the China Labor-force Dynamics Survey (CLDS 2016). The CLDS 2016 was conducted by the Center for Social Survey of Sun Yat-sen University. The respondents for this study were chosen from the CLDS 2016 data, by using a probability proportional to size sampling technique. As the target population of this study were the elderly in China, we selected a sample of respondents over the age of 60 years. After excluding participants with missing information, the data of 3767 participants were used in this study.

## Variables

### Emotional health

The Center for Epidemiologic Studies Depression scale (CES-D) was used as the indicator of respondents' emotional health. The scale consists of 20 items. To reflect the state of emotional health, we adjusted the CES-D indicators through sorting, such that each item had four response options: 1 = "almost always have the symptoms" (last for 5–7 days), 2 = "often have the symptoms" (last for 3–4 days), 3 = "sometimes have the symptoms" (last for 1–2 days), and 4 = "do not have the symptoms" (last for less than 1 day). The scale has a Cronbach's alpha value of 0.95. The scores of the 20 items were added to obtain an emotional health score, where higher scores indicated better emotional health.

### Social trust

In this study, social trust was divided into three categories: trust in family members, trust in friends, and trust in neighbours. Social trust in each group was rated on a scale of 1 to 5, with a higher score indicating a higher level of trust in the particular group.

### Subjective well-being and subjective social status

Subjective well-being and subjective social status were the main independent variables in this study. Subjective well-being was measured through the respondents' evaluation of their happiness rated from 1 to 5, with higher scores indicating higher subjective well-being. Subjective social status was assessed on a 10-rung ladder measure of social class rank, from 1 to 10, with higher scores indicating higher subjective social status.

### Control variables

Individual demographic factors and neighbourhood types were used as control variables. The control variables were: age (continuous variable), type of neighbourhood (categorical variable), gender (categorical variable), educational level (continuous variable), and self-rated health (continuous variable). Neighbourhood types were either urban or rural, owing to the great differences in public service facilities, social welfare, and living environment between urban and rural neighbourhoods in China, with the former offering better services and environment. Self-rated health data were obtained by asking respondents about their physical health, rated on a scale from 1 (very healthy) to 5 (very unhealthy), with higher scores indicating lower self-rated health.

## Results

### Mediation effects of subjective well-being and subjective social status on the relationship between social trust and emotional health of older adults

Table 1 presents the descriptive statistics of all the variables used in the analysis. Table 2 shows the regression results on the relationship of social trust and emotional health and the mediation effect of subjective well-being. The dependent variable in Models 1, 3, 4, 6, 7, and 9 was emotional health, and the dependent variable in Models 2, 5, and 8 was subjective well-being. Model 1 shows that trust in family members is significantly and positively associated with respondents' emotional health (coefficient = 2.854, P < 0.01). Elderly living in urban neighbourhoods showed better emotional health than those living in rural neighbourhoods (coefficient = 0.984, P < 0.05). Compared with male respondents, female respondents had significantly poorer emotional health (coefficient = -1.450, P < 0.01). Further, the higher the level of education, the better was the reported emotional health of the respondents (coefficient = 0.348, P < 0.01). The worse the self-rated health of the respondents, the more likely they were to suffer from poor emotional health (coefficient = -3.078, P < 0.01). Model 2 shows that trust in family members had a significant positive effect on the subjective well-being of the respondents (coefficient = 0.189, P < 0.01). Older, female, and well-educated respondents were more likely to report higher subjective well-being than younger, male, and less-educated respondents (coefficient = 0.014, P < 0.01; coefficient = 0.074, P < 0.05; coefficient = 0.031, P < 0.01; respectively). Respondents with poor health were more likely to have lower subjective well-being (coefficient = -0.210, P < 0.01).

Table 1  
Descriptive statistics of the variables used in the analysis (n = 3767)

variables	Mean (SD)/Percentage
Emotional health (20–80)	71.87 (10.12)
Trust in family members (1–5)	4.80 (0.50)
Trust in friends (1–5)	4.32 (0.72)
Trust in neighbors (1–5)	3.88 (0.79)
subjective well-being (1–5)	3.78 (0.92)
Subjective social status (1–10)	4.35 (1.80)
Age (>= 60 years old)	64.24 (4.27)
Neighborhood types	
Rural neighborhoods)	75.07
Urban neighborhoods	24.93
Gender	
Male	53.20
Female	46.80
Educational level (1–9)	2.39 (1.52)
Self-rated health (1–5)	2.82 (1.03)

Table 2  
The relationship of social trust and emotional health and the mediation effects of subj

Trust in family members				Trust in friends								
	Model 1: emotional health	Model 2: subjective well-being	Model 3: emotional health	Model 4: emotional health	Model 5: subjective well-being	Model 6: emotional health	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient
Trust in family members	2.854***	(0.309)	0.189***	(0.029)	2.476***	(0.306)						
Trust in friends					1.703***	(0.216)		0.171***	(0.020)	1.362***		
Trust in neighbors												
subjective well-being				1.999***	(0.170)					1.995***		
Age	0.004	(0.037)	0.014***	(0.003)	-0.025	(0.036)	0.002	(0.037)	0.014***	(0.003)	-0.026	
Urban neighborhoods (ref: Rural neighborhoods)	0.984**	(0.402)	-0.020	(0.038)	1.025***	(0.395)	1.023**	(0.404)	-0.009	(0.038)	1.040***	
Female (ref: male)	-1.450***	(0.322)	0.074**	(0.030)	-1.597***	(0.317)	-1.403***	(0.323)	0.076**	(0.030)	-1.554***	
Educational level	0.348***	(0.116)	0.031***	(0.011)	0.286**	(0.114)	0.326***	(0.116)	0.029***	(0.011)	0.268**	
Self-rated health	-3.078***	(0.152)	-0.210***	(0.014)	-2.659***	(0.153)	-3.019***	(0.153)	-0.200***	(0.014)	-2.620***	
Constants	66.228***	(2.918)	2.456***	(0.275)	61.317***	(2.896)	72.494***	(2.684)	2.604***	(0.251)	67.298***	
N	3767		3767		3767		3767		3767		3767	
R-sq	0.147		0.075		0.177		0.142		0.082		0.172	
adj. R-sq	0.146		0.073		0.176		0.141		0.081		0.170	
Log lik.	-13764.447		-4866.960		-13696.387		-13775.740		-4852.439		-13708.882	

Standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

Models 4 and 5 show that trust in friends was significantly and positively associated with respondents' emotional health and their subjective well-being (coefficient = 1.703, P < 0.01; coefficient = 0.171, P < 0.01; respectively). Models 7 and 8 show that trust in neighbours was significantly and positively associated with respondents' emotional health and their subjective well-being (coefficient = 1.461, P < 0.01; coefficient = 0.186, P < 0.01; respectively). In terms of the influence of demographic factors, the regression results of Models 4 and 7 are similar to those of Model 1, and the regression results of Models 5 and 8 are similar to those of Model 2.

We followed Baron and Kenny [25] to test the presence of mediation effects of subjective well-being. Figure 2 shows the results of Model 3, indicating that adding the variable of subjective well-being to Model 1 weakened the effect of trust in family members on emotional health from coefficient = 2.854 to coefficient = 2.476. Figure 3 shows that after adding the subjective well-being variable into Model 4, the impact of trust in friends on the emotional health of the respondents decreased by 0.341. Figure 4 shows that after adding the subjective well-being variable into model 7, the impact of trust in neighbours on the emotional health of the respondents decreased by 0.370. These results suggest that subjective well-being can effectively reduce the impact of social trust (in family, friends, and neighbours) on the emotional health of older respondents.

Table 3 shows the regression results of the mediation effect of subjective social status on the relationship between social trust and emotional health. Models 10, 12, and 14 show that trust in family members, trust in friends, and trust in neighbours had significant positive effects on respondents' subjective social status (coefficient = 0.115, P < 0.05; coefficient = 0.095, P < 0.05; coefficient = 0.121, P < 0.01; respectively).

Table 3  
The regression results of mediation effects of subjective social status on the relationship between social trust and emotional health

	Trust in family members		Trust in friends		Trust in neighbors		
	Model 10: subjective social status	Model 11: emotional health	Model 12: subjective social status	Model 13: emotional health	Model 14: subjective social status	Model 15: emotional health	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient
Trust in family members	0.115** (0.057)	2.762*** (0.306)					
Trust in friends			0.095** (0.040)	1.627*** (0.214)			
Trust in neighbors					0.121*** (0.036)	1.365*** (0.036)	
subjective social status		0.804*** (0.087)			0.804*** (0.087)		0.797*** (0.087)
Age	0.020*** (0.007)	-0.013 (0.037)	0.020*** (0.007)	-0.014 (0.037)	0.020*** (0.007)	-0.013 (0.037)	
Urban neighborhoods (ref: Rural neighborhoods)	0.208*** (0.075)	0.817** (0.398)	0.213*** (0.075)	0.851** (0.400)	0.235*** (0.075)	1.011** (0.075)	
Female (ref: male)	0.074 (0.060)	-1.509*** (0.319)	0.075 (0.060)	-1.463*** (0.319)	0.080 (0.060)	-1.393*** (0.319)	
Educational level	0.128*** (0.022)	0.245** (0.115)	0.127*** (0.021)	0.224* (0.115)	0.129*** (0.021)	0.248** (0.115)	
Self-rated health	-0.337*** (0.028)	-2.807*** (0.153)	-0.332*** (0.028)	-2.752*** (0.154)	-0.331*** (0.028)	-2.803*** (0.154)	
Constants	3.050*** (0.542)	63.776*** (2.897)	3.180*** (0.497)	69.938*** (2.669)	3.106*** (0.486)	71.680*** (2.669)	
N	3767	3767	3767	3767	3767	3767	3767
R-sq	0.064	0.166	0.064	0.161	0.066	0.159	0.159
adj. R-sq	0.063	0.165	0.063	0.159	0.064	0.157	0.157
Log lik.	-7423.296	-13721.965	-7422.476	-13733.546	-7419.775	-13738.024	

Standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

We also followed Baron and Kenny [25] to test the presence of mediation effects of subjective social status. Figure 5 shows the results of Model 11, indicating that adding the variable of subjective social status to Model 1 weakened the effect of trust in family members on emotional health from coefficient = 2.854 to coefficient = 2.762. The impact of trust in family members on the emotional health of the respondents decreased by 0.092. Figure 6 shows that after adding the subjective social status variable into Model 4, the impact of trust in friends on the emotional health of the respondents decreased by 0.076. Figure 7 shows that after adding the subjective social status variable into Model 7, the impact of trust in neighbours on the emotional health of the respondents decreased by

0.096. These results suggest that subjective social status can effectively reduce the impact of social trust (in family, friends, and neighbours) on the emotional health of the elderly.

In terms of demographic factors, Model 10 shows that age, neighbourhood type, education level, and self-rated health had significant influence on the subjective social status of the respondents. Among them, the older the respondents, the higher was their subjective social status (coefficient = 0.020, P < 0.01). Compared with the respondents in rural neighbourhoods, the respondents in urban neighbourhoods had significantly higher subjective social status (coefficient = 0.208, P < 0.01). Respondents with a higher level of education also had a higher subjective social status (coefficient = 0.128, P < 0.01), while respondents with poor health had relatively poor subjective social status (coefficient=-0.337, P < 0.01). Models 15 and 17 show similar results.

#### **Moderation effects of subjective well-being and subjective social status on the relationship between social trust and emotional health of older adults**

Table 4 shows the regression results of the moderation effects of subjective well-being and subjective social status on the relationship between social trust and emotional health. The results from model 16 show that subjective well-being moderated the relationship between trust in family members and emotional health. The positive relationship between trust in family members and emotional health was weakened by subjective well-being. Model 17 shows that the positive relationship between trust in neighbours and emotional health was weakened by subjective social status.

Table 4

The regression results of moderation effects of subjective well-being and subjective social status on the relationship between social trust and emotional health

	Model 16: emotional health		Model 17: emotional health	
	Coefficient	S.E.	Coefficient	S.E.
Subjective well-being	7.086***	(1.398)		
Subjective social status			1.210	(0.857)
Trust in family members	4.552***	(1.123)	1.411*	(0.821)
Trust in friends	0.810	(1.084)	0.703	(0.679)
Trust in neighbors	1.702*	(0.926)	1.918***	(0.570)
Trust in family members # Subjective well-being	-0.749**	(0.310)		
Trust in friends # Subjective well-being	-0.102	(0.284)		
Trust in neighbors # Subjective well-being	-0.304	(0.239)		
Trust in family members # Subjective social status			0.186	(0.185)
Trust in friends # Subjective social status			-0.047	(0.149)
Trust in neighbors # Subjective social status			-0.289**	(0.125)
Age	-0.019	(0.036)	-0.015	(0.036)
Urban neighborhoods (ref: Rural neighborhoods)	1.237***	(0.398)	1.053***	(0.401)
Female (ref: male)	-1.536***	(0.316)	-1.449***	(0.318)
Educational level	0.288**	(0.114)	0.244**	(0.115)
Self-rated health	-2.590***	(0.153)	-2.719***	(0.153)
Constants	41.202***	(5.709)	59.688***	(4.620)
N	3767		3767	
R-sq	0.184		0.174	
adj. R-sq	0.181		0.172	
Log lik.	-13680.913		-13703.620	
Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01.				

## **Discussion**

Few previous studies have compared the effects of different types of social trust on the mental health of the elderly [26, 27]. The present findings fill this research gap. We analysed the effects of social trust on the emotional health of the elderly, including their trust in family, friends, and neighbours. The results indicate that trust in family had the greatest impact on the emotional health of the elderly, followed by trust in friends, and then, trust in neighbours. This result can be considered as ‘the differential mode of association’ [28] in the emotional health of the elderly. This is a pattern of difference in the relationship between social trust and emotional health, in which family members provide the greatest emotional support to the elderly in China. Although the rapid economic development and modernisation process in the past few decades have had a profound impact on the social structure of China [29], for those over 60 years of age, the emotional support of traditional family relationships remains strong [30]. A multi-generational reunion family, therefore, has important implications for the mental health of older persons.

Subjective well-being and subjective social status are not only psychological states, but also have positive emotional health effects [31, 32]. This study found that subjective well-being and subjective social status have a certain protective effect on the emotional health of the elderly in China. Both can effectively reduce the degree of the impact of social trust on the emotional health of the elderly. Subjective well-being and subjective social status are the overall cognitive evaluation of one’s quality of life. Older people with higher degrees of happiness and social status have a stronger ability to cope with mental health risks, and they may have a stronger ability to make social interactions less likely to affect their emotional health. A higher quality of life can also enable older people to overcome depression more quickly. In addition, social status is related to social capital or social resources that one has or can use [33]. Older people with higher subjective social status may have more social resources to mitigate the impact of external factors on their emotional health.

China is fast becoming an aging society, and the protection of the mental health of the elderly population has become increasingly important. Based on the above findings, we make policy recommendations in the following three areas. First, maintaining harmonious family relationships has an important impact on the emotional health of the elderly. Faced with the increasing generational separation of family members [34], the Chinese society should advocate the integrity of the family, so that the elderly could get emotional support from their family members immediately when they may need it. Second, the Chinese government must urgently address the mental health of the elderly and improve the social welfare system for the elderly. In China, the lifestyle of many elderly people is very monotonous, and there is no opportunity for them to work or continue to meaningfully participate in society after retirement [35, 36]. It is crucial to provide the elderly with more opportunities to participate in social activities in order to alleviate elderly depression. Third, community mental health services are a shortcoming of China’s health services. It is necessary to establish a community-based mental health service system to allow more elderly people to receive formal and direct mental health support.

## Conclusion

This study found that trust in family members, friends, and neighbours each has a significant positive effect on the emotional health, subjective well-being, and social status of the elderly. Subjective well-being and subjective social status play a significant mediating and moderating role in the relationship between social trust and the emotional health of the elderly, and the positive relationship between trust in family members and emotional health is weakened by subjective well-being. Further, the positive relationship between trust in neighbours and emotional health is weakened by subjective social status. This study suggests that family relationships play an important role in maintaining the emotional health of the elderly. In response to the increase in the aging population in China, social policies to care for the elderly and help them live a happy and decent life must be urgently introduced.

## List Of Abbreviations

CLDS - China Labor-force Dynamics Survey

CES-D - Center for Epidemiologic Studies Depression Scale

## Declarations

### Ethics approval and consent to participate

Not applicable.

### Consent for publication

Not applicable.

### Availability of data and materials

Data used in this study were derived from the 2016 wave of the China Labor-force Dynamics Survey (CLDS 2016), which was conducted by the Center for Social Survey of Sun Yat-sen University. The opinions in this paper are those of the authors.

### Competing interests

The authors declare that they have no competing interests.

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## Authors' contributions

HC conceived and designed this study. HC and ZZ performed the statistical analysis. HC and ZZ drafted and revised the manuscript. All authors read and approved the final manuscript.

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## Figures

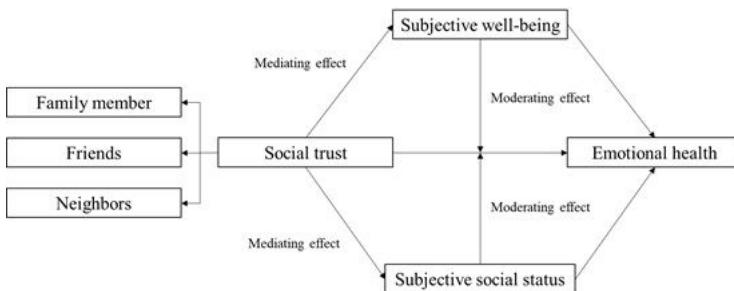


Figure 1

Research framework of this study

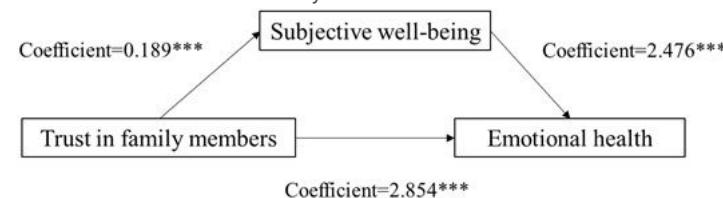


Figure 2

Unstandardized coefficients estimating trust in family members→subjective well-being→ mental health; \* = p < .10, \*\* = p < .05, \*\*\* = p < .01.

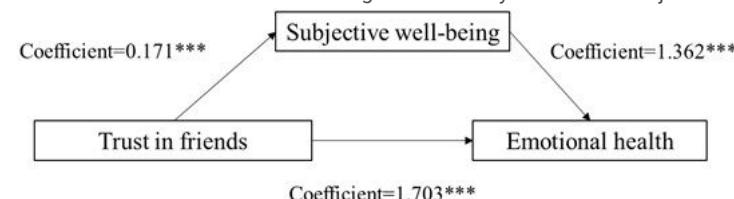


Figure 3

Unstandardized coefficients estimating trust in friends→subjective well-being→ mental health; \* = p < .10, \*\* = p < .05, \*\*\* = p < .01.

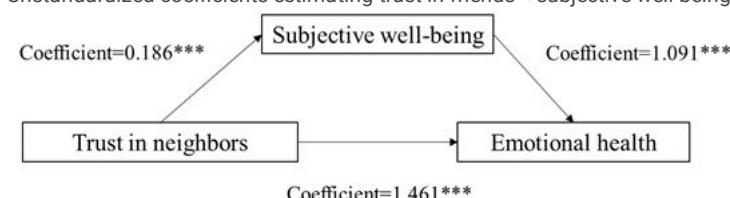
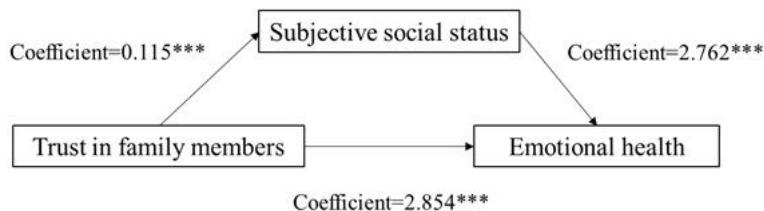


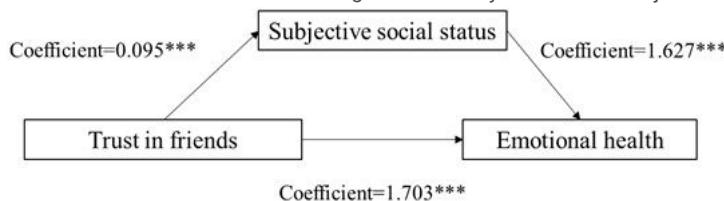
Figure 4

Unstandardized coefficients estimating trust in neighbors→subjective well-being→ mental health; \* = p < .10, \*\* = p < .05, \*\*\* = p < .01.



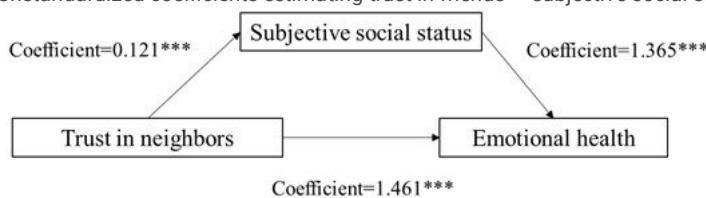
**Figure 5**

Unstandardized coefficients estimating trust in family members→ subjective social status→ mental health; \* =  $p < .10$ , \*\* =  $p < .05$ , \*\*\* =  $p < .01$ .



**Figure 6**

Unstandardized coefficients estimating trust in friends→ subjective social status→ mental health; \* =  $p < .10$ , \*\* =  $p < .05$ , \*\*\* =  $p < .01$ .



**Figure 7**

Unstandardized coefficients estimating trust in neighbors→ subjective social status→ mental health; \* =  $p < .10$ , \*\* =  $p < .05$ , \*\*\* =  $p < .01$ .