

# Influence of Social Activities Participation on the Mental Health of the Elderly in China

Yangyang Wang<sup>1, \*</sup>

<sup>1</sup>Philippine Christian University, Manila, Philippine

\* Corresponding Author

**Abstract:** Based on CLHLS data in 2018, this paper empirically analyzes the effect of participating in social activities on the mental health of the elderly in China by using Oprobit model. The findings are as follows: Firstly, compared with the elderly who have not participated in social activities, participating in social activities is helpful to reduce the depression of the elderly and improve their mental health. Secondly, the effect of participating in social activities on the mental health of the elderly is heterogeneous. For the elderly with old-age insurance, female groups and rural hukou, as well as the western region, the effect of social activities on improving the mental health level is more obvious. Thirdly, taking the depression score as a substitute variable for empirical analysis, it proves once again that participating in social activities reduces the depression score of the elderly, and proves that the mental health improvement effect of social activities of the elderly is very significant and stable. Fourthly, through the analysis of intermediary effect, it is found that participating in social activities can improve the mental health of the elderly by influencing their existing life evaluation. In order to accelerate the construction of healthy aging in China, it is urgent to continuously strengthen the health literacy of the elderly, and encourage them to actively participate in social activities based on life health, so as to effectively improve the mental health problems of the elderly.

**Keywords:** Social activities, Depression, Mental health, Elderly people in China.

## 1. Introduction

With the increase of age, the physical function of the elderly declines, resulting in a decline in the level of mental health. At the same time, with the retirement of the elderly, facing the changes in social roles, living environment and lifestyle, the elderly have negative emotions such as anxiety, depression, sadness and fear, and the mental health problems of the elderly have gradually become prominent. Existing data show that the mental health problems of the elderly in China are very prominent, with the prevalence rates of anxiety and depression reaching 22.11% and 22.6 respectively. At the same time, with the increase of the number of empty nesters and solitary elderly, more and more elderly people lack the companionship of their children, which will inevitably bring more serious mental health problems to the elderly. In the strategic deployment of healthy aging proposed by China, good social participation is also one of the key contents, and whether social participation can effectively improve the physical and mental health level of the elderly remains to be verified. Therefore, this paper uses the national survey data, selects social activities as proxy variables of social participation, focuses on the impact of social activities on the mental health of the elderly, and further explores the impact path of social activities on the mental health of the elderly, with a view to improving the mental health of the elderly scientifically and effectively, which is of great significance for improving the quality of life of the elderly and continuously promoting the national strategy of healthy aging.

## 2. Literature References

Zhang(2023) analyzed the data of China Health Retirement Longitudinal Study in 2018, and found that the detection rate of depressive symptoms among the elderly in China was 45.9%[1]. Similarly, He(2023) also analyzed the data of

CHARLS2018, and found that the detection rate of depressive symptoms among the elderly in China was 44.59%[2]. Although the two scholars use the same data, there is a slight difference in the detection rate of depressive symptoms among the elderly, but the data analysis results show that the problem of depression among the elderly in China is more serious. Some scholars also found that the detection rate of depressive symptoms among the elderly in western China and ethnic minorities was relatively low, which remained at around 10%[3]. Moreover, for the elderly who are female, have no spouse, have low education, live alone and live in rural areas, they are more likely to have depressive symptoms[4, 5, 6]. In addition, both Duan(2023) and Xu(2023) used the CHARLS data from 2011 to 2018 to analyze the changing trend of depression in the elderly, and the conclusions were inconsistent[7, 8]. The results of Duan analysis showed that the detection rate of depression in the elderly did not change significantly, while the results of Xu analysis showed that the depression of the elderly showed an upward trend with the passage of time.

Most studies show that participating in social activities is a protective effect on the depression of the elderly and has a significant positive effect on improving their mental health [9, 10]. Some scholars have compared the effects of participating in social activities on the physical health and mental health of the elderly. Zheng(2017) found that the effects of participating in social activities on the mental health of the elderly are greater than their physical health[11]. However, through empirical analysis, Yu(2021) learned that participating in organized social activities only affects the physical health of the elderly, and denies the influence of social activities on the mental health of the elderly[12]. At the same time, Su(2022) and Xu(2023) found that only continuous social participation can delay the growth of depression in the elderly[13]. Most of the results confirm that social activities, whether online or offline, organized or

unorganized, have a significant reducing effect on the depression of the elderly [14, 15, 16]. However, there are obvious differences in the influence of social activities on different groups of the elderly. For widowed men, social activities have no significant effect on the degree of depression[17]. For older people, people with higher education, low income, floating population and elderly people in rural areas, the effect of participating in social activities on their depression is more obvious[18, 19].

The existing research has laid a solid foundation for this paper to deeply study the influence of participating in social activities on the mental health of the elderly. Based on this, this paper expands the contents of two aspects on the basis of the existing literature. One is to fully consider the diversity of depression symptom variables, and this paper uses the depression scale to set continuous variables and classified variables to comprehensively investigate the influence of participating in social activities on whether the elderly are depressed or not and their depression level; Second, taking the existing quality of life of the elderly as an intermediary variable, explore the influence path of the elderly's participation in social activities on mental health.

### 3. Research Design

#### 3.1. Data Source

In this paper, we use Stata analysis software, and use the data of the 2018 China Follow-up Survey on the Influencing Factors of Elderly Health (CLHLS) to explore the influence of the participation of the elderly in organized social activities on their mental health in China. The research object of this paper is the elderly group, focusing on their mental health, participation in social activities and other characteristics. Combined with the research object, purpose and content of this paper, CLHLS data is highly applicable and the results are representative of the whole country. In order to ensure the data quality, in the process of data cleaning, the blank and abnormal values of independent variables, dependent variables and control variables are deleted. With the research demand as the limiting condition, after strict and serious data cleaning and sorting, the observed value of the data studied in this paper is finally determined to be 6215.

#### 3.2. Descriptive Statistical Analysis

Table 1 shows the definitions and basic statistical characteristics of all variables involved in the study. Combined with the dependent variable setting, the minimum depression score is 9 and the maximum is 45. However, descriptive statistical analysis shows that the minimum score of depression is 9, the maximum score is 43, and the average score is 19.17, indicating that the degree of depression of the elderly is relatively low. According to the analysis results of four categories of depression variables, the proportion of elderly people with depression score less than or equal to 12 is 12.52%, that of mild depression is 33.89%, that of moderate depression is 51.07%, and that of severe depression is very small, accounting for 2.53%. In terms of the participation of

the elderly in organized social activities, the proportion of the elderly participating in social activities is 17.65%, which is relatively small. Combined with China's social culture and family concept, after retirement, the elderly will pay more attention to family investment and improve the overall effectiveness of the family, and consider intergenerational reciprocity, that is, the elderly will choose to return to their families in exchange for their children's economic and emotional support, so that they have no time and energy to participate in social activities.

### 3.3. Empirical Analysis Model

This paper focuses on the dependent variable mental health status of the elderly, which is a four-category variable. Combined with the characteristics of dependent variables, the Ordered Probit Regression Model is selected for analysis. The empirical analysis model is as follows:

$$depress_i = \alpha_0 + \beta_i socact_i + \gamma_i X_i + \mu_i \quad (1)$$

Among them,  $i$  represents the individual of the elderly,  $depress$  is the degree of depression of the elderly,  $socact$  is whether the elderly participate in social activities,  $\alpha_0$  is a constant term,  $\beta_i$  and  $\gamma_i$  are parameters to be estimated, and  $\mu_i$  is a random error term.

## 4. Empirical Analysis and Discussion

### 4.1. Basic Regression

Table 2 shows the effect of the elderly's participation in social activities on their mental health. The empirical analysis shows that the participation of the elderly in social activities significantly reduces their depression. In other words, compared with the elderly who did not participate in social activities, the mental health level of the elderly who participated in social activities was higher. Combined with the actual social situation, with the increase of age, the mental health of the elderly gradually declines, and the introduction of the labor market will make the elderly feel the decline of social functions, and then produce a sense of "uselessness". The double blow of physiological function decline and social function decline will lead to mental health problems of the elderly. Participating in social activities, on the one hand, can let the elderly have something to do, kill boring free time, and reduce their sense of loneliness and loss. On the other hand, participating in social activities can help the elderly make more friends with their peers, ensure their normal social life, and help avoid mental health problems for the elderly. In addition, in order to solve the endogenous problem, this paper chooses the participation rate of social activities of the elderly at the provincial level as an instrumental variable to make an empirical analysis. The results of IV-Oprobit analysis are consistent with the results of basic regression, but the basic Oprobit analysis underestimates the influence of social activities on the mental health of the elderly.

**Table 1.** Definition of Variables and Descriptive Statistical Analysis

Variable	Definition	Mean	Std.Dev	Min	Max
yyiu	Respondents' depression scale score	19.1667	5.58	9	43
depress					
No Depression	Depression score of 12 or less	0.1252	0.33	0	1
Mild Depression	Depression score 13-18	0.3389	0.47	0	1
Moderate Depression	Depression score 19-30	0.5107	0.50	0	1
Major Depression	Depression score above 30	0.0253	0.16	0	1
socact	Respondents participate in social activities are 1, and no is 0.	0.1765	0.38	0	1
gender	Male is 1, female is 0.	0.4851	0.50	0	1
hukou	Urban is 1, rural is 0.	0.3294	0.47	0	1
agegrp					
60-74	Older people aged 60-74.	0.3134	0.46	0	1
75-89	Older people aged 75-89.	0.4087	0.49	0	1
90 or more	Older people aged 90 and over.	0.2779	0.45	0	1
school	Did the interviewee go to school?	0.6156	0.49	0	1
married	Has the interviewee ever been married?	0.5187	0.50	0	1
faltee	Does the interviewee have false teeth?	0.4169	0.49	0	1
tuobei	Do you hunch over?	0.2674	0.44	0	1
alichild	The number of children you have alive.	3.3419	1.74	0	11
duju	Does the respondent live alone?	0.1583	0.37	0	1
toincome	Total household income in the past year.	44671.5900	37386.00	0	100000
lifequa					
Very Bad	Life is very bad now.	0.0035	0.06	0	1
Bad	Life is not good now.	0.0217	0.15	0	1
General	Life is average now.	0.2534	0.44	0	1
Good	Life is good now.	0.4644	0.50	0	1
Very Good	Life is very good now.	0.2570	0.44	0	1
jiankang					
Very Bad	I feel that my health is very bad now.	0.0072	0.08	0	1
Bad	I feel that I am in poor health now.	0.1158	0.32	0	1
General	I feel that my health is average now.	0.3780	0.49	0	1
Good	I feel that I am in good health now	0.3652	0.48	0	1
Very Good	I feel that my health is very good now.	0.1337	0.34	0	1
sheep					
Very Bad	My sleep quality is very bad now.	0.0182	0.13	0	1
Bad	I don't sleep well now.	0.1260	0.33	0	1
General	I have a moderate sleep quality now.	0.3062	0.46	0	1
Good	I sleep well now.	0.3767	0.49	0	1
Very Good	I sleep very well now.	0.1730	0.38	0	1
drink	Respondents who drink alcohol are 1 and not drink alcohol are 0.	0.1644	0.37	0	1
ADLS	Daily activity score	6.6238	1.07	0	7
chronic	Do you have chronic diseases?	0.7347	0.44	0	1
gecare	Have your children provided you with daily care in the past two weeks?	0.3598	0.48	0	1
tjian	Do you have a routine physical examination once a year?	0.7271	0.45	0	1
endowins	Do you have endowment insurance?	0.5315	0.50	0	1
gecare4	Do you often talk to your children?	0.8098	0.39	0	1
qufuw	Does the residential community provide social services for the elderly?	0.6500	0.48	0	1
origin diqu					
West	Western China	0.2377	0.43	0	1
Central	Central China	0.2196	0.41	0	1
East	Eastern China	0.4895	0.50	0	1
Northeast	Northeast China	0.0533	0.23	0	1

**Table 2.** Influence of Participating in Social Activities on Mental Health of the Elderly

depress	Oprobit			IV-Oprobit		
	Coef.	Std. Err.	P> z	Coef.	Std. Err.	P> z
socact	-0.0749	0.0409	0.0670	-0.1306	0.1401	0.0310
gender	0.0053	0.0339	0.8750	-0.0025	0.0339	0.9410
hukou	-0.0244	0.0367	0.5050	-0.0937	0.0442	0.0340
married	-0.0640	0.0386	0.0970	-0.0723	0.0386	0.0610
agegrp						
2	0.0847	0.0380	0.0260	0.1049	0.0386	0.0070
3	0.0008	0.0507	0.9880	0.0476	0.0533	0.3730
jiankang						
2	-0.0292	0.1815	0.8720	-0.0669	0.1817	0.7130
3	-0.4706	0.1782	0.0080	-0.5019	0.1782	0.0050
4	-0.8717	0.1787	0.0000	-0.9027	0.1786	0.0000
5	-1.2488	0.1819	0.0000	-1.2766	0.1816	0.0000
sheep						
2	-0.1664	0.1190	0.1620	-0.1929	0.1191	0.1050
3	-0.2549	0.1151	0.0270	-0.2783	0.1151	0.0160
4	-0.5191	0.1150	0.0000	-0.5364	0.1149	0.0000
5	-0.8212	0.1185	0.0000	-0.8405	0.1183	0.0000
ADLS	-0.0575	0.0156	0.0000	-0.0645	0.0158	0.0000
lnincome	-0.0378	0.0093	0.0000	-0.0388	0.0093	0.0000
chronic	0.0697	0.0346	0.0440	0.0734	0.0345	0.0340
drink	-0.0777	0.0409	0.0570	-0.0832	0.0408	0.0420
tijian	0.0075	0.0343	0.8270	-0.0065	0.0346	0.8500
gecare	-0.0600	0.0340	0.0780	-0.0662	0.0340	0.0520
qufuw	0.0359	0.0314	0.2520	0.0072	0.0330	0.8280
tuobei	0.1132	0.0354	0.0010	0.1067	0.0354	0.0030
faltee	-0.0721	0.0301	0.0160	-0.0648	0.0302	0.0320
duju	0.1158	0.0451	0.0100	0.1113	0.0451	0.0140
school	-0.1084	0.0364	0.0030	-0.1271	0.0369	0.0010
alichild	-0.0149	0.0094	0.1150	-0.0103	0.0096	0.2810
gecare4	0.0872	0.0385	0.0240	0.0773	0.0386	0.0460
origin_diqu						
2	0.0440	0.0437	0.3140	0.0555	0.0438	0.2050
3	-0.0288	0.0381	0.4500	-0.0378	0.0382	0.3220
4	-0.1778	0.0721	0.0140	-0.1620	0.0722	0.0250

Mental health is also one of the important factors affecting the mental health of the elderly. From the perspective of self-rated health, the better the self-rated health, the better the mental health of the elderly. The empirical analysis also shows that the higher the self-rated health, the more obvious the reduction effect on the depression of the elderly. The empirical analysis of the score of daily activities shows that daily activities have a significant negative effect on the depression of the elderly, indicating that the stronger the daily activities of the elderly, the better the corresponding mental health. Similarly, compared with the elderly with chronic diseases, the degree of depression without chronic diseases is lower. Based on the analysis of the related variables of the mental health status of the elderly, it is known that the improvement of mental health level is the key to improve their mental health status. Sleep quality is also a key factor affecting the mental health of the elderly. Empirical analysis shows that the better the sleep quality of the elderly, the less likely they are to fall into depression and the better their mental health performance.

## 4.2. Heterogeneity Analysis

Participating in social activities has a significant impact on the mental health of the elderly, but the impact of social activities within the elderly group is different. In Table 3,

whether the elderly participate in medical insurance, gender, household registration and region are classified variables for heterogeneity analysis. In the aspect of participating in medical insurance, owning medical insurance reduces the depression of the elderly, but compared with the elderly who have medical insurance and participate in social activities, the effect of not participating in old-age insurance on the mental health of the elderly is not significant. From the perspective of gender differences, compared with men, female elderly people's participation in social activities significantly reduced their depression. According to the reality of social division of labor in China, women retire earlier than men, and the average life expectancy of women is higher than that of men. Women's sense of loss and powerlessness will be more intense when their social roles change after retirement. Therefore, in the long retirement life, the positive impact of participating in social activities on women is more obvious and significant. The analysis of urban-rural heterogeneity shows that the effect of participating in social activities to alleviate the depression of rural elderly is more significant. The material conditions and socio-economic level in cities are higher, and the cultural life is richer. Compared with most "empty nesters" in rural areas, the mental health status of urban elderly people is better than that of rural elderly people.

**Table 3.** Effect of Participating in Social Activities on Mental Health of Different Groups of the Elderly

depress	endowins		gender		hukou	
	No	Yes	Female	Male	Rural	Urban
socact	-0.0468 (0.0733)	-0.0826** (0.0501)	-0.0282 (0.0627)	-0.1100** (0.0543)	-0.1224** (0.0591)	-0.0603 (0.0584)
Control Variables	Cntrol					
depress	Origin_diqu					
	West	Central	East	Northeast.		
socact	-0.3385*** (0.0884)	0.2753*** (0.1078)	-0.1396*** (0.0548)	0.2167 (0.1899)		
Control Variables	Cntrol					

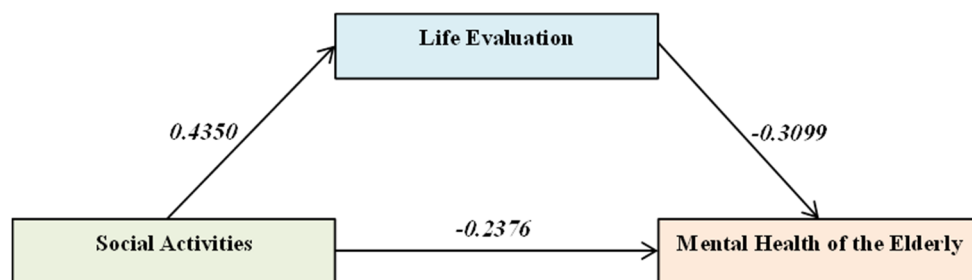
Note: (1)\*, \*\* and \*\*\* are significant at the statistical level of 10%, 5% and 1% respectively; (2) The standard error is in brackets; (3) Due to the limitation of space, the results of control variables are not shown. If necessary, contact the author.

From the perspective of the region, there are significant differences in the effects of participating in social activities on the mental health of the elderly in different regions of China. In the western and eastern regions of China, participating in social activities has significantly reduced the depression of the elderly. However, in central and eastern China, participating in social activities has increased the risk of depression among the elderly. It is worth noting that for the elderly in Northeast China, the effect of social activities on mental health is not significant. For the elderly in the central region, if they still have the ability to work after retirement, many people will choose to continue working in order to contribute to the family economy. There are also some people who will choose to devote themselves to housework or take care of their grandchildren, which will help their children have more time to work, thus improving the overall effectiveness of the family. For the simple and industrious people in central China, the fixed and traditional life style makes the mental health level of the elderly themselves low and stable. Therefore, participating in social activities may not only disturb the normal life of the elderly, but also occupy their time, which will eventually lead to an increase in the risk of depression of the elderly.

### 4.3. Analysis of Intermediary Effect

This paper chooses the old people's evaluation of their

present life as an intermediary variable, and then clarifies the influence path between social activities and mental health of the old people. The empirical analysis shows that the direct effect of participating in social activities on the mental depression of the elderly is -0.2376, and the indirect effect of life evaluation is -0.1348 now, accounting for 56.74%, which proves that life evaluation plays a partial intermediary role in social activities and mental health of the elderly. For the elderly in China, most of them return to their families after retirement, and their main activities are family activities and community activities. Living in a small area according to the rules will lead to small fluctuations in the evaluation of their existing lives. As a subjective attitude, life evaluation reflects the mental health status of the elderly and has a significant impact on the mental health level of the elderly. Participating in social activities is an important means for the elderly to jump out of the normal life circle, expand their social scope and strengthen their social ability. Social activities that are different from the normal life scope and life rules can enhance the joy and freshness of the elderly, and then help to improve their evaluation of the existing life. Therefore, combining the effects of existing life evaluation and social activities on the mental health of the elderly, we should pay attention to the key role of life evaluation while encouraging the elderly to participate in social activities more.



**Figure 1.** Influence of Social Activities and Life Evaluation on Mental Health of the Elderly

## 5. Conclusion

Based on the CLHLS data in 2018, this paper uses the Oprobit model to test the effect of participating in social activities on the mental health of the elderly in China. The study found that compared with the elderly who did not participate in social activities, participating in social activities helped to reduce the depression of the elderly and improve their mental health. Taking gender, participation in endowment insurance, registered permanent residence and

region as classified variables, the heterogeneity analysis shows that participating in social activities significantly reduces the depression of the elderly. Participating in social activities has a more obvious effect on improving the mental health level for the old-age insurance, female groups and rural hukou, as well as the elderly in the western region. At the same time, taking the depression score as a substitute variable for empirical analysis, it proves once again that participating in social activities reduces the depression score of the elderly, and proves that the mental health improvement effect of

social activities of the elderly is very significant and stable. In addition, through the analysis of intermediary effect, it is clear that participating in social activities can improve the mental health of the elderly by influencing their existing life evaluation.

First, break the age barrier and encourage the elderly to actively participate in social activities. We should break the age limit in environmental construction and provide an aging participation environment for the elderly from the aspects of community, public space and working environment of enterprises. Second, strengthen the management of chronic diseases in the elderly in all directions. The community should speed up the formation of a three-level prevention system for chronic diseases, which is guided by three-level hospitals, centered on community health service centers and based on community health service stations, so as to form a three-level prevention and control network for chronic diseases in various ways, such as general survey, prevention, treatment, management and research. Third, attach great importance to the mental health of the elderly. Encourage all localities to strengthen mental health education and services as an important part of the construction of a healthy China, incorporate them into local economic and social development plans, and increase financial investment in mental health education and services for the whole people, especially the elderly. Fourth, vigorously support the development of mental health social organizations.

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