

A Study of the Effect of Participating in Outdoor Social Activities on the Degree of Depression in the Elderly

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ABSTRACT

With the intensification of the aging of the population in China, our society has begun to pay close attention to the current situation of the elderly participating in outdoor social activities and the current status of depression. We expect to promote the mental health of the elderly by increasing the participation rate of outdoor social activities. Based on CLHLS 2018 data, this paper conducted an empirical analysis to study the effect of participating in outdoor social activities on the degree of depression in the elderly, and the results showed that: In model 1 for controlling various characteristics of the elderly, model 2 for adding personal characteristics of the elderly, and model 3 for adding personal, family and social characteristics of the elderly, it was shown that participation in outdoor social activities had a significant negative effect on the degree of depression in the elderly.

Keywords: older adults, outdoor social activities, degree of depression, CLHLS 2018.

1. INTRODUCTION

According to the data of the seventh census, as of November 1, 2020, there are 264 million elderly people aged 60 and above in China, accounting for 18.7%; the elderly population aged 65 and above has 190 million people, accounting for 13.5%. This shows that China has entered the aging population society, we should understand the current situation of the elderly participating in outdoor social activities and the current status of depression. In the future, how will we reduce depression in the elderly by increasing participation in outdoor interactions? These are all problems that need to be solved urgently to study the aging of the population.

The research objectives of this paper are mainly discussed from two aspects. The first is to conduct a descriptive analysis of the current situation of the elderly participating in outdoor social activities and the current situation of depression. The second is to analyze whether participating in outdoor social activities has a significant impact on the degree of depression in the elderly. The results of this paper will have important implications for coping with population aging, and it will provide reference significance for future studies of outdoor activities and depression in the elderly.

2. LITERATURE REVIEW AND RESEARCH DESIGN

2.1. Literature Review

When measuring the degree of depression in the elderly, scholars usually use a scale. The scholar Yang Mingxu (2022) and the scholar Qin Yiwen (2022) used the depression scale in the text[1][2]. The scholar Sun Junjun (2022) used depression scale for the elderly in the text[3]. When studying the influencing factors of the degree of depression in the elderly, the scholar Ju Mingjie (2022) pointed out that subjective socioeconomic status had a significant impact on the depressive symptoms of the elderly[4]. The scholar Cao Ruofan (2020) found that the daily physical activity level of the elderly had a significant impact on depression[5].

2.2. Data Sources

The data in this paper is from the 2018 China Geriatric Health Influencing Factors Follow-up Survey Database. The sample of this database covers 23 provinces, municipalities and autonomous regions across the country, and the sample is universal. In 2018, the total sample size of the CLHLS database was 15874 people,

and after screening, a total of 2520 valid samples were obtained.

2.3. Variable Selection and Definition

2.3.1. Interpreted Variables

In this paper, the degree of depression in the elderly was selected as the dependent variable, which was reflected by the depression scale. The questions in the Depression Scale indicate whether certain behaviors have been present in the last week (up to two weeks), and each question has 5 options: "always", "often", "sometimes", "rarely", and "never", and these options are assigned a value of 0-4, where never = 0, rare/sometimes = 1, often = 2, always = 3. This study draws on the diagnosis methods of depression in the research of Liu Yan[6] and Yang Yi [7], and believes that 10 points greater than or equal to 10 are defined as depression, and less than 10 points are defined as normal.

2.3.2. Explanatory Variables

This paper selects outdoor social activities of the elderly as an independent variable. These activities mainly include tai chi, square dance, playing cards or mahjong, visiting or interacting with friends, other outdoor activities, participating in social activities (organized activities) and tourism, all of which are five-point variables. Respondents answered "Never" with a value of 0 = no participation, all other answers were assigned a value of 1 = participation. Under this classification, whenever there is an event to participate, the value is 1 = participation, otherwise it is 0 = no participation.

2.3.3. Control Variables

This article sets personal, family, and social characteristics as control variables. Personal characteristics include gender, age, household registration, physical health, education level, life satisfaction and daily exercise. Family characteristics include marital status, mode of residence, care status and affluence. Social characteristics include endowment insurance.

2.4. Research Methodology

Descriptive statistical analysis. The current situation of outdoor social activities and the degree of depression in the CLHLS 2018 database was analyzed. The relationship between outdoor social activities and the degree of depression was explored by placing them into a two-dimensional cross-column table for chi-square analysis.

Binary Logistic regression. In this paper, a binary logistic regression model will be constructed to explore

the influence of participating in outdoor social activities on the degree of depression, because the degree of depression is divided into two values: normal and depressed, so it is suitable for a binary regression model. Outdoor social activities are used as explanatory variables, and the personal, family and social characteristics of the elderly are used as control variables. This article uses SPSS.26 for empirical analysis studies.

2.5. Research Hypotheses

Hypothesis: Participation in outdoor social activities has a significant negative effect on the degree of depression in the elderly.

3. DESCRIPTIVE ANALYSIS OF PARTICIPATION IN OUTDOOR SOCIAL ACTIVITIES AND DEPRESSION LEVELS IN THE ELDERLY

3.1. Descriptive Analysis of the Participation of the Elderly in Outdoor Social Activities

According to the results, tai Chi and other outdoor activities ranked in the top two, with a participation rate of 90.6% and 60.7% respectively. Visiting or socializing with friends and square dancing ranked in the bottom two, with a participation rate of 7.9% and 7.7% respectively. It can be seen from this that tai chi is extremely popular with the elderly, but the number of elderly people who dance square dance is small. This may be because the body of the elderly is less suitable for strenuous exercise and is more suitable for gentle exercise. Overall, the elderly participated in outdoor activities accounted for 94.3% and did not participate in outdoor activities accounted for 5.7%. The elderly are no longer tied to the home but gradually begin to go outdoors. The participation rate of outdoor activities is gradually increasing.

3.2. Descriptive Analysis of the Degree of Depression in the Elderly

According to the results, in 2520 samples, 1668 elderly people were normal, accounting for 66.2%. 852 elderly people were depressed, accounting for 33.8%. Finally, from the overall point of view, the degree of depression in the elderly in China is low, most of the elderly are in normal, and a small number of elderly people are depressed.

3.3. A Cross-table of Outdoor Social Activities and Depression Levels in the Elderly

According to the results, among the elderly who participate in outdoor social activities, the number of normal elderly people accounts for 66.8%, and the number of depressed elderly people accounts for 33.2%;

among the elderly who do not participate in outdoor social activities, the number of normal elderly people accounts for 55.9%, and the number of depressed elderly people accounts for 44.1%. In summary, the proportion of elderly people who participate in outdoor social activities is even lower.

3.4. Chi-square Analysis of Outdoor Social Activities and Depression Levels in the Elderly

The establishment of a two-dimensional column table between variables makes the frequency of the observation sample distributed in each cell, and the relationship between the variables and the strength of the relationship can be clearly found, and the non-parametric method analysis of outdoor social activities and the degree of depression is now carried out. The null hypothesis H_0 : outdoor social activities and the degree of depression were independent. According to the results, the significance level $\alpha = 0.05$ rejected the null hypothesis, the association between outdoor social activities and the degree of depression were considered, and the sample size of the test is large. The results showed that Pearson chi-square value was 7.112, significance P was 0.008, likelihood ratio was 6.850, and significance P was 0.009, so outdoor social activities and the degree of depression were significantly correlated.

4. REGRESSION ANALYSIS OF PARTICIPATION IN OUTDOOR SOCIAL ACTIVITIES ON THE DEGREE OF DEPRESSION IN THE ELDERLY

In order to further study the effect of participation in outdoor social activities on the degree of depression in the elderly and the influence of control variables such as personal, family and social characteristics of the elderly on the degree of depression in the elderly, the outdoor social activities and other control variables will be included in turn.

4.1. Regression Results of Participation in Outdoor Social Activities on the Degree of Depression in the Elderly

The regression analysis was carried out by adding outdoor social activities, and the results showed that $B=0.461$, $\text{Exp}(B)=1.585$, and significance $P=0.008$ were added, so outdoor social activities had a significant effect on the degree of depression in the elderly. At a significance level of 0.05, the likelihood of depression in older adults who do not participate in outdoor activities is 1.585 times higher than that of older people who participate in outdoor activities. It indicated that older people who do not participate in outdoor activities are more likely to be depressed, and the hypothesis holds. Because outdoor social activities are fun and easy to

attract the interest of the elderly, it helps to mentally normalize.

Model 2 added the personal characteristics of the elderly as the control variable on the basis of model 1, and the results showed $B=0.384$, $\text{Exp}(B)=1.467$, and significance $P=0.031$. It shows that under the significance level of 0.05, the regression coefficient of outdoor social activities is 0.384, and not participating in outdoor social activities has a positive effect on depression in the elderly, and the possibility of depression in the elderly who do not participate in outdoor social activities is 1.467 times higher than that of the elderly who participate in outdoor social activities, which is assumed to continue to be true in model 2.

Model 3 added family and social characteristics as control variables on the basis of model 2, and the results showed $B=0.398$, $\text{Exp}(B)=1.489$, and significance $P=0.026$, so not participating in outdoor social activities had a positive effect on depression in the elderly, and the significance was slightly higher than that of model 2. At a significance level of 0.05, the regression coefficient of outdoor social activities is 0.398, and the likelihood of depression in older adults who do not participate in outdoor social activities is 1.489 times higher than that of older people who participate in outdoor social activities.

This may be due to the fact that in recent years, the state has increasingly advocated that the elderly go out of the house and go outdoors, playing tai chi and dancing square dance in the community square, etc. are gradually fanned by the elderly, and these similar outdoor social activities have become the key to promoting the psychological normalcy of the elderly. In the sample, the proportion of elderly people participating in outdoor activities such as tai chi is relatively high, which is especially important for the elderly to have a normal psychology, so there is a real correlation.

4.2. Regression Results of Other Control Variables on the Degree of Depression in the Elderly

After adding personal characteristics to model 2, it was found that physical health and life satisfaction had a significant effect on the degree of depression. In the physical health variable, physical health has a significant negative impact on the degree of depression, at the significance level of 0.01, the likelihood of depression in the elderly with average health is 1.273 times higher than that of the elderly in good health, and the likelihood of depression in the elderly who are not in good health is 2.435 times higher than that of the elderly in good health, which indicates that the healthier the body, the higher the degree of depression, and the two are closely related. In the life satisfaction variable, life satisfaction had a negative effect on the degree of depression, and at a significance level of 0.01, the likelihood of depression in

older people who are dissatisfied with life is 3.672 times higher than that of older people who are satisfied with life. This conclusion is in line with objective reality, because only when the elderly have a positive and optimistic attitude towards life, they will not feel troubled and their mood will be happy.

After adding personal characteristics, family characteristics and social characteristics to model 3, the results showed that the physical health variable and the life satisfaction variable were the same as those in model 2, and they had a negative effect on depression. In the physical health variable, physical health has a significant negative impact on the degree of depression, at the significance level of 0.01, the likelihood of depression in the elderly with average health is 1.278 times higher than that of the elderly in good health, and the likelihood of depression in the elderly who are not in good health is 2.467 times higher than that of the elderly in good health, which indicates that the healthier the body, the higher the degree of depression, and the two are closely related. In the life satisfaction variable, life satisfaction had a negative effect on the degree of depression, and at a significance level of 0.01, the likelihood of depression in older people who were dissatisfied with life was 3.593 times higher than that of older people who were satisfied with life. In the whether to the live alone variable, at a significance level of 0.1, the older person living alone is 1.265 times more likely to be depressed than the elderly who do not live alone, which indicates that the more the elderly are living alone, the higher the degree of depression. Through the regression analysis of the three models at different levels, we can find that the coefficient changes and significance are more consistent, so the model is more robust.

5. CONCLUSION

Based on the findings of this paper, we recognize that participating in outdoor activities has an important impact on the degree of depression in the elderly, so the elderly need to strengthen their connection to the outside world and choose appropriate outdoor social activities to reduce the degree of depression. Finally, the risk of psychological depression is reduced by strengthening interpersonal communication. To this end, I will put forward the following suggestions: At the government level, the government should strengthen the construction of the culture of the elderly and further improve relevant policies and regulations. At the community level, communities need to strengthen the construction of activities for the elderly, the construction of facilities for the elderly and the construction of services for the elderly. At the personal level, the elderly should get rid of the shackles of traditional concepts, and actively participate in outdoor activities with their own interests, hobbies, strengths, etc. as the starting point, and choose outdoor activities that can promote physical and mental health,

and maintain good communication with the community and family.

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