

Analysis of Social Isolation Factors of the Elderly in Beijing

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Abstract. Social isolation has long been playing a critical role but is under-recognized as a risk factor for poor health outcomes. The study aims to identify and analyze the sociodemographic factors among elderly people who are at higher risk of being socially isolated in Beijing. The study's data is sourced from the Chinese Longitudinal Health Longevity Study in 2018 (CLHLS). The study uses the social isolation of the elderly as the dependent variable and the sociodemographic factors of social isolation of the elderly as the independent variable and then conducts ANOVA analysis and multiple linear regression analysis. The results of the study show that age, family structure, marital status, primary source of income, education level, and number of children born have a significant correlation with social isolation. While other factors such as gender, type of work before retirement, chronic disease status, and per capita monthly income of households, show no significant association with social isolation.

Keywords: Social isolation; sociodemographic factors; elderly; CLHLS.

1. Introduction

It is inevitable that the health of the elderly in their later years will become a very significant research and attention issue as population aging becomes a universal social phenomenon in the world today. The psychological health of the elderly is particularly important, as maintaining a positive and optimistic mentality is also crucial for the quality of life in later years as physical abilities begin to deteriorate. The mental health issues of elderly people in developing countries are often overlooked due to insufficient social security systems. 149 Chinese cities have entered deep aging as of September 2021, according to data from the seventh national population census in China. Despite this, the existing security system prioritizes the physical health of the elderly, while neglecting their mental well-being.

As far as the mental health of the elderly is concerned, social isolation plays a critical but neglected risk factor for poor older adult health outcomes. Social isolation means the objective physical separation from others. Generally, social isolation refers to a physical separation from others. In particular, as people age, their physical and cognitive abilities diminish, and their social resources change, such as living patterns and social connections [1]. Thus, social isolation would result in the deficiency of social relationships.

As a well-established risk factor for all-cause mortality and cardiovascular disease, social isolation is important to the well-being of older individuals in both physical and mental health [2, 3]. And low levels of social isolation were connected with poor cognitive function, as well as memory, and executive function [4].

Although social isolation is the key factor that influences the life quality of elderly people, the research on this area is not sufficient and presents a situation of regional imbalance of research subject and research focus lopsidedness. There is a regional imbalance in that more research is currently conducted on the elderly population in developed countries, whereas less research is performed on the elderly population in developing countries. Moreover, social isolation is directly influenced by social resources, therefore, there should be some differences between regions with varying economic, political, and cultural characteristics.

As for the research focus, the research explores further the consequences of being socially isolated rather than the sociodemographic factors contributing to the "high risk of social isolation". Since social isolation is a critical problem but the social resources are always limited, the policy that aids in preventing or improving the situation needs to be designed efficiently. Therefore, the

sociodemographic factors of the high-risk group should be clearly identified. Accordingly, this study examines sociodemographic factors of "high risk of elderly social isolation" by using data from the elderly living in the capital city of China, Beijing.

2. Method

This study is based on data collected by the Chinese Longitudinal Health Longevity Study in 2018 (CLHLS). The CLHLS survey is a follow-up survey conducted by the National Development Research Institute of Peking University on elderly people. The survey targets elderly people aged 65 and above, covering 23 provinces, cities, and autonomous regions across the country. The survey covers the basic family situation, personality and emotional characteristics, and economic status of elderly people. This study selected the elderly survey data from Beijing in 2018 as the research object, with a total sample size of 622 people.

The study initially examined the social isolation prevalence among the elderly in Beijing. If survey subjects failed to provide adequate information in order to determine their level of social isolation, they would be excluded from the sample, resulting in a total sample size of 426 participants.

2.1. Variable

2.1.1. Dependent Variable

This research adopts a multidomain typology constructed by Cudjoe et al., in order to assess social isolation [1]. The degree of social isolation was graded according to multiple measures. Participants receive 1 point if they meet each of the subsequent requirements: living with at least one other person, having at least people to talk about "important issues" in the previous year, participating in social activity in the previous month (religious service, club, meeting, group activities or doing volunteer work) [1].

7 questions can be extracted from the questionnaire. The number of people living together. The number of people who can talk about the important issue can be extracted from three questions: "In daily life, who is it you usually speak to the most?", "To whom do you turn first when you need to express your thoughts?", "To whom do you turn first for help when you have problems/difficulties?" Respondents get 1 point if they have more than one talking object and receive 0 points if they have one or zero person to take about. The respondent's presence at social activities can be extracted from three questions: "How often do you participate in outdoor activities", "How often do you participate in playing cards and/or mah-jong", and "How often do you participate in Social activities (organized)". And the questionnaire did not ask about the religion of elder people, so the relevant data are missed. For the data known, each participant has one point if their participation in activities is higher than at least once a month. Then the three questions are generated, get a score scale for social activity participation, from "0 - 7".

So the degree of isolation can be divided into two categories according to the scoring scheme: "people at risk of social isolation (0-3)" and "people meet the requirements (4-7)".

2.1.2. Independent variable

The study examined sociodemographic factors: age (interval of five years), gender (, marital status(married, widowed or never married), education level (no or less elementary school, Junior high school graduate/equivalent, high school and beyond), Career before retirement (Mainly mental work, Mainly manual labor, both of them), Number of children born (zero, one ~three, more the three), Chronic disease conditions(zero, one ~two, more than two), total household income/month (<2000, 2000~3000, >3000); the main source of income(pension, child support, Local governments, and associations); family structure (living with a partner, living with child, others).

2.2. Statistical analysis

Statistical analysis of survey data using EXCEL and SPSS statistical software. First, use ANOVA analysis to statistically analyze the variables and statistically describe the data.

This study takes the social isolation of the elderly as the dependent variable, and the sociodemographic factors of social isolation of the elder citizen as the independent variable. Through ANOVA analysis, several significant factors were identified as the research subjects for multiple linear regression.

3. Result

A total of 426 valid samples were collected from elderly survivors in Beijing. Among these, 198 males (46.4%) and 228 females (53.5%); the youngest respondent was 63 years old, and the oldest was 111 years old, with an average age of (85.84±11.88) years; 181 people live with their spouses and 194 people live with their children. The average score of the social isolation scale for 451 elderly people in this survey is (3.74±1.78) points, of which 180 people are at high risk of social isolation, about 42.2%. Among elderly people in Beijing, general characteristics (age, education level, marital status, number of children born); Main economic sources; and living structure all demonstrate statistical significance ($P<0.05$). However, gender, chronic disease status, and Career before retirement did not show statistical significance in contributing higher risk of social isolation among the elderly.

In the ANOVA analysis of social isolation factors among elderly people in Beijing, general characteristics (age, education level, marital status, number of children); Main economic sources; and living structure all demonstrate statistical significance ($P<0.05$). However, gender, chronic disease status, and Career before retirement did not show statistical significance in contributing higher risk of social isolation among the elderly (table 1).

Table 1. ANOVA analysis of social isolation factors among elderly people in Beijing.

Factor	Group	Population	Social isolation	F	Sig.
Gender	Male	198	3.89±1.8	0.699	0.404
	Female	228	3.75±1.74		
Age	<71	61	4.44±2	18.813	0
	71~76	64	4.73±1.65		
	>76	301	3.5±1.65		
Education level	None or less elementary school	220	3.66±1.85	4.628	0.01
	Junior high school graduate/equivalent	99	3.32±1.46		
	High school and beyond	108	4.22±1.45		
Marital status	Married	194	4.25±1.79	15.657	0
	Widowed or never married	249	3.33±1.67		
Career before retirement	Mainly mental work	126	3.65±1.83	1.047	0.372

Continuation Table 1.

Factor	Group	Population	Social isolation	F	Sig.
Number of children born	Mainly manual labor	254	3.83±1.77	8.491	0
	Both of them	13	3.62±1.66		
	0	3	1±0		
	1~3	265	3.95±1.82		
	>3	159	3.41±1.62		
			4.23±1.64		

Chronic disease conditions	0	62	4.23±1.64	1.965	0.141
	1 ~ 2	156	3.72±1.78		
	≥ 3	108	3.76±1.79		
Total household income/month (CNY)	<2000	146	3.81±1.69	1.266	0.283
	2000 ~ 3000	140	3.63±1.81		
	> 3000	141	3.96±1.81		
Major source of income	Pension	281	3.5±1.58	3.85	0.022
	Child support	68	4.14±1.99		
	Local government and associations	51	3.83±1.93		
Family structure	Living with partner	181	4.31±1.77	15.58	0
	Living with child	194	3.36±1.65		
	Others	24	3.29±1.57		

In the multiple linear regression analysis of social isolation of the elderly in Beijing (table 2), the influencing factors are: advanced age (≥ 76 years old); Number of children born (>3); Family structure (living with children); Economic source (mainly relying on children's support); Marital status (widowed); Education level (junior high school and above), these factors contribute a statistically significant outcome on the degree of social isolation ($P<0.05$).

4. Discussion

The research results show that gender, type of work before retirement, chronic disease status, and per capita monthly income of households, show no significant association with social isolation. It has been shown in previous studies that gender and social correlations have diverse effects: some studies suggest no gender differences [5]; in other studies, there is a correlation between gender and social isolation: social isolation and male status have a significant correlation [6]. There is also evidence to suggest that women have a higher possibility to undergo social isolation [7]. The result of per capita income of household's matches with the results of the survey implemented in Shanghai, and neither indicates a significant correlation with social isolation. According to surveys targeting elderly people in developed countries, lower household income is related to a greater risk of social isolation [8]. Consequently, there are regional differences with regard to whether household income plays a significant role in social isolation. There may be a moderating effect between income and social isolation in part due to the perception of the environment in which an individual lives [9]. It was found that the type of work performed prior to retirement, whether it was mainly mental or physical labor, isn't significantly related to the level of social isolation, which is in accordance with previous research [10].

Table 2. Multiple linear regression analysis of the impact of social isolation on the elderly in Beijing.

Variable		Reference group	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t	Sig.
Age	71~76	<71	0.001	0.001	0.023	0.982
	>76		0.774	0.212	4.093	0
Education level	Junior high school graduate/equivalent	None or less elementary school	-0.082	-0.205	-	0
	High school and beyond		-0.602	-0.165	-	0
Marital status	Separated	Married	-0.026	-0.017	-	0.716
	Widowed or never married		-0.935	-0.261	-	0
Number of children born	1~3	0	-0.031	-0.094	-	0.252
	>3		0.572	0.169	1.145	0.04
A major source of income	Child support	Pension	-0.049	-0.099	-	0.036
Family structure	Living with child	Living with partner	-0.074	-0.207	-	0

A common social isolation scale used in domestic research is the Lubben Social Network Scale (LSNS-6). In LSNS-6, a more detailed division of social isolation situations is included, as well as an overview of the evaluation process, but more specific scales have limited general applicability. Accordingly, this study referred to the method of evaluating social isolation level used by Cudjoe [1], which may be well adapted to the survey questionnaire CLHLS (2018). Based on the results of the evaluation: age, family structure, marital status, main source of income, education level, and number of children born have a significant correlation with social isolation, which is in line with the research conducted by LSNS-6 to explore the social isolation situation of elderly Chinese citizens [10, 11], demonstrating that the evaluation method is general and effective [1].

5. Conclusion

This study identifies the sociodemographic factor of social isolation among the elderly in Beijing, China. Through the two stages of analysis, the result of the study shows: that age older than 76 years old and the number of children born is more than 3, have a significant correlation with social isolation. While the elderly who have relatively good child support (living with their children, getting financial support from their children), and being widowed also present a significant correlation with social isolation. In terms of the mental health aspects of the elderly, CLHLS (2018) focuses on a relatively conservative approach. Due to the comprehensive promotion of compulsory education in China and the continuous improvement of citizens' education levels, the spiritual world of the elderly is also expected to undergo a change of greater complexity and diversity. It is therefore imperative that the survey questionnaire design for elderly societies keeps up with technological advances and continuously updates. Future surveys should emphasize more spiritual issues, for example, diverse interests, religious beliefs, political beliefs, gender perspectives, and lifelong learning habits.

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