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Discussion with Regression Analysis about Effects of Urban Social Capital and Family Structure on Medical Ecology Use

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Abstract

Aging population structure gradually enhances the elderly dependence on the family and the government. To solve the dependency problem, it is primary to improve the elderly health conditions. The fundamental solution is the elderly, whose emotional and psychological health conditions and physical activity functions are the keys in the adaptation to role change and physical degeneration after the retirement. Aiming at aged population in Shanghai as the analysis object, total 320 copies of questionnaire are distributed, and 251 valid copies are retrieved, with the retrieval rate 78%. The research results reveal remarkably positive effects of 1.social capital on use expenditure, 2.social capital on activity function, 3.family structure on use expenditure, and 4.family structure on activity function. According to the results, suggestions are proposed, expecting to effectively improve medical ecology use conditions.

Keywords: social capital, family structure, medical ecology use, population structure

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INTRODUCTION

Under the inevitable aging population structure, the elderly dependence on the family and the government is increasing that the burden of the family and the government becomes heavier. To solve the dependency problem, the improvement of the elderly health conditions is primary. The major objective of the elderly welfare policy is to maintain the independence. Good health conditions of the elderly could largely reduce the utilization of medical resources, allow them further involving in social participation and even increasing productivity, and reduce the support burden of young adults. It would be critical for future population aging society. For this reason, the health promotion of the elderly is worth of more and deeper discussions with academic studies. Although the governmental welfare measures could reduce medical barriers for the elderly, the health conditions are hard to maintain. The governmental social welfare is simply the subsidies for the lowest living and medical use guarantee of the elderly; the fundamental solution relies on the elderly, including the emotional and psychological health conditions and the physical activity functions which are the keys in the elderly adapting to role change and physical degeneration after the retirement. It is therefore necessary to understand the interpersonal interaction, social relationship, and network connection of the elderly under the existing social structure and social context. Domestic research on the elderly health promotion seems to lack of analyses on the elderly network or social capital, but mainly discusses the elderly social support. Accordingly, this study aims to discuss the effects of family structure and social capital on the medical ecology use and health conditions of the elderly under the living context and social environment.

LITERATURE REVIEW

Social Capital

Ji et al. (2017) defined social capital as the convergence of real or potential resources in the fixed social network, which could be a systematic or non-systematic familiar reciprocal relationship and was maintained the persistence with morality. In other words, an individual being approved the membership in the group could enjoy the benefits created or derived from the group. Meanwhile, Ekwaru et al. (2017) regarded social capital being established by continuous management that social capital was generated through "investment". In other words, social capital was

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generated by other forms of capitals, especially economic capital. From the analysis of individuals, Moscelli et al. (2016) defined social capital from the functions and considered that the characteristics of social structure allowed movers utilizing and becoming the resource acquisition channel; such characteristics of social structure contained movers' obligation and expectation, information channels, and social norms to limit or encourage certain behaviors. In other words, Grant (2016) referred social capital to the composition of specific individual's resource acquisition from above social structure and being beneficial to individual movement, i.e. social capital being productive, not being completely replaced for certain special movement, and merely being effective to certain movement. Asp et al. (2017) pointed out the similarity between social capital and social cohesion; social cohesion referred to group link and union in a social group, and a cohesive society with rich "mutual cooperation, morality, support" allowed an individual sharing the collective energy and offering support when the individual was exhausted (Tseng et al. 2015). Apparently, the idea of social capital was similar to social cohesion that social capital was the innate character of social cohesion.

Referring to Chang et al. (2017), social participation and social trust are regarded as the indicators of social capital.

(1) Social participation: Expanding network coverage through the participation in public affairs to further acquire higher social capital.

(2) Social trust: Social trust is the most important indicator in social capital. Good social trust would facilitate collective movement and mutual assistance to enhance collective social capital; besides, collective movement could further reinforce the norm of reciprocity of a community.

Family Structure

Ding et al. (2016) indicated that family was the key source to support the elderly in Chinese social tradition. "Raise children to provide against old age" and "feedback model" were the characteristics in Chinese parent-child relationship (Langford et al., 2016). Although the rapid change in modern industrial society changed traditional family or residential patterns on which the elderly used to rely, the family structure was gradually divided into nuclear family, under the rapid change. However, the support obligation to parents did not disappear, but the responsibility for the aged parents was undertaken in different patterns. Bloom et al. (2015) indicated that the ratio of family taking care of the elderly was not changed, while the ratio of care by family members was reduced and the care for the elderly by non-family members was increasing. It revealed that the responsibility and obligation of family care still existed, but was adjusted to merely take care of the elderly (Moro et al. 2017). A US research also indicated that urbanization and industrialization would not destroy the traditional model of mutual assistance among relatives (Tangka et al. 2015). Gorczyca et al. (2017) also mentioned that family members were still the major support of the elderly in Taiwan, and family was the major care; institutional nursing homes were repelled. However, in terms of the elderly medical decision-making, family was a key factor (Wang et al. 2015).

Referring to Mu et al. (2018), the following indicators are used for family structure.

(1) Family social capital: family interaction relationship
(2) Residents in the same house: residents in the same house containing spouse and children
(3) Residence distance: children of the participants not living in the same area

Medical Ecology Use

Hwang et al. (2016) pointed out three major factors in individual medical ecology use as predisposing component, enabling component, and illness component. Predisposing component contained demographic characteristics, social structure, and health belief. Enabling component was divided into family component (income, insurance, constant health care sites) and social component (urbanization, expenses, and physician population ratio). Loozen (2015) classified illness component into self-rated health conditions (e.g. disabilities) and physician judgment (e.g. symptoms and diagnoses) (Kerr et al., 2017). Such dimensions are discussed as below.

(1) Predisposing component: Predisposing component refers to the effects of demographic characteristics and social structure in which an individual exists on medical ecology use. Such individual characteristics are generally presented before the use of medical service, including individual demographic characteristics, social structure conditions, and attitudes towards and belief in medical system and health.

(2) Enabling component: Enabling component refers to individual ability of medical resource use, e.g. individual economic conditions, health insurance, medical resource accessibility (transportation, time cost), and medical resources in the community. An individual not having the ability to use medical resources might hinder the use of medical resources to result in delayed medical care (Carlson et al. 2015).

(3) Illness component: Illness component refers to individual perception of illness, such as self-rated health conditions, physical activity function, feeling of illness, and disabled activities of daily living. Such individual perception of health contains subjective cognition of health or objective physician diagnoses. Illness component is the essential factor in medical use, while the previous components are the sufficient components. Illness component shows about 56.8~66.7% explanatory power of outpatient medical use (Neutens 2015).

Referring to Lo et al. (2017), the use of health conditions is regarded as an indicator of medical ecology use, and activity function is used for measuring the elderly health conditions. The indicators of medical ecology use include

(1) Use expenditure: number of medical care use in the past year.

(2) Activity function: difficulty in doing some actions without others' help or the assistance of tools.

Research Hypothesis

Zhao et al. (2017) stated that social capital was the accumulated stock to help an individual acquire information in the interpersonal interaction and contact process as well as acquire various resources to maintain personal health. Moreover, the higher social capital could better enhance health related behaviors to enhance personal physical, psychological, and social health (Min and Min 2016). Some research pointed out positive correlations between social capital and health conditions. In the research on the countryside in Madagascar, Chang et al. (2017) indicated that the higher social capital could better form good self-rated health conditions. In the research on the correlations between social capital and self-rated health conditions in Sweden, Oh et al. (2017) mentioned that, after controlling individual background characteristics, people with the least social capital link appeared higher unhealthy risks than those with the most social capital in the village. Ji et al. (2017) analyzed the relationship between social capital and health capital with the life conditions in Sweden and found out the positive correlations between social capital and health. The following hypotheses are therefore established in this study.

H1: Social capital shows significantly negative effects on use expenditure.

H2: Social capital reveals remarkably positive effects on activity function.

Wang et al. (2015) indicated that family full of vitality and interaction could have the family members more easily cultivate healthy living habits and acquire or more efficiently use professional medical resources. Family social capital, as a channel, could have an individual acquire better family resources, including economic support, information delivery, and instrumental and emotional support, which were key factors in the elderly medical use and health. In regard to family intervention in individual medical decision-making, Moore et al. (2016) considered that, it was normally the family members discussing the action to adopt when there were illness symptoms; especially, the first participant in the discussion was the most important, as it would be the key to confirm individual illness. Mu et al. (2018) mentioned that, when an individual was sick, the proper action was discussed, where the decision and selection were judged according to family health and medical use. For a married male, the spouse was normally the first one for the discussion, and even the family members would see the same doctor (Kerr et al. 2017). Schmid and Varkevisser (2016) studied the elderly in Miaoli to understand the effect of social support of family on the elderly medical use. The results revealed that the elderly acquiring more support from the family would reduce the use of formal medical resources. It proved the theory of substitution effect (Ding et al. 2016). The following hypotheses are further established in this study.

H3: Family structure appears significantly negative effects on use expenditure.

H4: Family structure presents remarkably positive effects on activity function.

Research Object

Aiming at aged population in Shanghai, 320 copies of questionnaire are distributed, and 251 valid copies are retrieved, with the retrieval rate 78%.

Table 1. Analysis of social capital to medical ecology use

dependent variable →	**medical ecology use**							
independent variable ↓	**use expenditure**		**activity function**		**use expenditure**		**activity function**	
social capital	Beta	t	Beta	t	Beta	t	Beta	t
social participation	-0.217	2.233**	0.221	-2.306**				
social trust	-0.233	2.412**	0.242	-2.522**				
family structure								
family social capital					-0.235	-2.438**	0.247	2.563**
number of residents in the same house					-0.212	-2.204**	0.218	2.249**
residence distance					-0.206	-2.126**	0.211	2.198**
F	33.752		37.183		35.667		41.241	
significance	0.000***		0.000***		0.000***		0.000***	
R2	0.334		0.378		0.353		0.389	
adjusted R2	0.316		0.352		0.331		0.366	

Note: * stands for $p<0.05$, ** for $p<0.01$, and *** for $p<0.001$.
Data source: Self-organized in this study

Analysis Method

Regression analysis is applied to understand the effects of urban social capital and family structure on medical ecology use.

ANALYSIS RESULT

Effects of Urban Social Capital on Medical Ecology Use

Effects of social capital on use expenditure

To test H1, the analysis results, **Table 1**, show notable effects of social participation (t=-2.233**) and social trust (t=-2.412**) on use expenditure that H1 is supported.

Effects of social capital on activity function

To test H2, the analysis results, **Table 1**, reveal the significant effects of social participation (t=2.306**) and social trust (t=2.522**) on activity function that H2 is supported.

Effects of family structure on use expenditure

To test H3, the analysis results, **Table 1**, appear remarkable effects of family social capital (t=-2.438**), number of residents in the same house (t=-2.204**), and residence distance (t=-2.126**) on use expenditure that H3 is supported.

Effects of family structure on activity function

To test H4, the analysis results, **Table 1**, present notable effects of family social capital (t=2.563**), number of residents in the same house (t=2.249**), and residence distance (t=2.198**) on activity function that H4 is supported.

CONCLUSION

The research results indicate that social trust shows the most effect on medical use expenditure, and the higher social trust, the lower expenditure, revealing that the elderly would appear lower medical expenditure when trusting more of others. What is more, the elderly with higher age, better activity function, and higher social trust show lower medical expenditure, and activity function is the major factor in the elderly medical expenditure. It reveals that health is the major factor in the elderly medical use. The elderly with better interaction with the family members would maintain the health conditions and easily acquire emotional and instrumental support to promote the health. Social capital could enhance the elderly health, while social trust could further influence the elderly medical resource use. That is, the elderly with higher social trust could easily acquire emotional support, keep better physical health, and reduce medical resource expenditure. Besides, health conditions could slow down the elderly medical resource use. The elderly, as a member of the society, show less participation than adults because of the degeneration of physical functions, but the social capital accumulated in the life process could develop the function to promote the health; and, the elderly with social trust could reduce the ratio of medical ecology use.

SUGGESTION

Aiming at above research results, the following suggestions are proposed in this study.

1. The interaction between the elderly and the family members is more important as the tight relationship, frequent interaction, and close affection present great emotional support on the elderly to directly enhance the physical health and reduce medical expenditure. The family members should concern more about the elderly. Especially, distance would not affect children offering support and concerns for the

elderly in the modern society with advance communication technology and transportation.

2. Regarding the positive function of social participation to the elderly health, the elderly should be encouraged to participate in social activities, get in the community, walk in crowds, and participate in activities good for health. In addition to enhancing physical health, it could affirm oneself, promote self-confidence, and promote quality of life. The elderly with limited physical functions could be encouraged to engage in static leisure activities, e.g. watching TV, handcrafts, playing chess, or chatting with friends, to cultivate the social participation ability, enhance the social trust and health, and reduce the medical resource use.
3. The government units, when making the elderly health promotion policies, are suggested to encourage family members concerning and accompanying the elderly and cultivating good interaction relationship. Comprehensive community development should be continuously promoted, expecting that the elderly could participate in the society through community activities, cultivate good interpersonal relationship, enhance social trust, and further enhance health and reduce medical resource use.

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