Analysis of current status and influencing factors of social support for elderly hypertensive patients in community

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Abstract: Background: Hypertension, as the most common cardiovascular disease, is one of the most important risk factors for stroke and coronary heart disease.The acquisition and perception of social support can help patients to control blood pressure and improve the quality of life. We intend to study the status and influencing factors of social support for elderly hypertension patients in Guangzhou community. Methods: In this study, 384 elderly patients with hypertension aged 60 to 75 years in Guangzhou community were selected by stratified sampling method. A questionnaire survey was conducted, including, social support rating scale(SSRS) and Patient Assessment of Chronic Illness Care(PACIC) and other basic information. Result: The average scores of total social support, objective support, subjective support and support utilization are lower than the norms(34.77 ± 6.36, 7.62 ± 1.86,20.45 ± 4.04, 6.70 ± 1.94,respectively).Education level, smoking status, disease cognition score, hospitalization frequency, chronic disease management score, living with friends and self-expense are the main influencing factors of support utilization score of elderly hypertension patients ($P < 0.05$).Education level, family history and chronic disease management score are the main influencing factors of social support score of elderly hypertension patients($P < 0.05$). Conclusion: The social support level of elderly hypertension patients in community in Guangzhou is lower than the norm in general, so it is necessary to build stableand reliable social networks to improve the level of social support for patients.

1. Introduction

Hypertension is the most common cardiovascular disease and one of the most important risk factors for stroke and coronary heart disease[1-3]. The results of the “Research on Major Diseases and Health Problems Preventable in China in the Next 20 Years” show that the severity of hypertension ranks first [4]. According to the China Hypertension Survey, the prevalence of hypertension in China has increased rapidly[5]. From 2012 to 2015, it was 23.2%, and the number of patients was 245 million. At the same time, the prevalence of hypertension in people aged 75 or older is as high as 60%, which means the control of hypertension in the elderly is under pressure.[6]. The strategy of blood pressure control for the elderly will continue to be the focus of future work. At present, there are still a lot of works we should do to develop hypertension management, in which lifestyle change, treatment adherence, and self-management are important elements[7]. Social support (SS) is an important variable that affects the health and disease of older people. Evidence suggests that spouses/partners, families, friends, colleagues, neighbors, and community members can be important sources of social support during periods of poor health or stress[8]. The acquisition and perception of these social support helps patients better control their blood pressure and improve their quality of life[9-12]. However, studies have shown that from 1996 to 2015, the level of social support and mental health for the elderly in China has generally declined[13-14]. Therefore, this research conducts an in-depth study on the social support of elderly hypertensive patients, intending to provide ideas for community prevention and treatment of hypertensive patients through the perspective of social support. The aim of this study is to provide a reference for the development of community intervention for elderly hypertension by studying the social support status of elderly hypertensive patients in the community and exploring its influencing factors.

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2. Source and method

2.1 Study subjects

The patients diagnosed with hypertension in the community of Guangzhou over 60 years old, who established health records in the community health service center were targeted populations. The stratified sampling method was used to select the elderly who met the criteria as the research object. Inclusion criteria: meet the diagnostic criteria for essential hypertension in China's guidelines for the prevention and treatment of hypertension (2010 edition), the age is over 60 years old; take at least one antihypertensive drug; live in the community for more than 5 years, not migrate; compliance is preferred, voluntary participation in research; signing of informed consent documents, in line with medical ethical requirements. Exclusion criteria: those who have serious physical and mental illness and who are unable to communicate properly. A total of 375 eligible subjects were enrolled.

2.2 Study content

2.2.1 Basic information and disease data survey

The survey includes general information and KABP data. General information includes age, gender, education level, marital status, occupation, family economic situation, payment method of medical expenses, smoking behavior, drinking behavior, lifestyle, family history of hypertension, course of disease, co-morbidities, and number of hospitalizations due to hypertension. The KABP questionnaire is based on the Ministry of Health's publicity outline and consists of four parts: knowledge, attitude, belief and behavioral orientation of hypertension.

2.2.2 Social Support Rating Scale

The Social Support Rating Scale (SSRS) revised by Shuiyuan Xiao, including objective support (3), subjective support (4), and social support utilization (3), a total of 10 entry. Among them, the scores of the sixth and seventh questions are 0 to 9 points, and the other items are divided into 4 levels from low to high, which are 1 to 4 points respectively. The total score of social support is 10 items, and the higher the total score and the scores of each dimension, the more social support is obtained. The scale has been widely used in China and has good reliability and validity.

2.2.3 Chronic Disease Management Evaluation Scale

The assessment was conducted using the Patient Assessment of Chronic Illness Care (PACIC). PACIC has five dimensions, involving patient initiative, service system design, goal setting, problem solving, and collaboration.

2.3 Survey method

The survey is conducted by means of a combination of surveyed and inquired investigators. The general project takes the form of inquiry, and other scales and questionnaires are self-evaluated by the research subjects.

2.4 Quality control of ethics and materials

Through ethical review, signing informed consent; comprehensive and standardized training for investigators in the preparation stage; pre-investigation before formal investigation, timely feedback, and correction of questionnaires. The logic and integrity, found that the wrong and missing items are filled and corrected in time. Data entry is done by double entry.

2.5 Statistical methods

The results of the study were entered into the EpiData 3.1 database for logic check, using SPSS 22.0 statistical software for analysis. The analysis included descriptive analysis, t-test, univariate analysis (Pearson correlation analysis and Spearman correlation analysis) and multi-factor analysis (multiple linear regression analysis). The difference was statistically significant at $P < 0.05$.

3. Results

3.1 General demographic characteristics and disease status of elderly hypertensive patients

A total of 386 questionnaires were distributed in this survey, and 375 valid questionnaires were returned. The effective recovery rate of the questionnaire was 97.2%. We investigated 177 male patients (47.2%) and 198 female patients (52.8%) in general. The education level was primary school and below, accounting for 71.5%.Among all patients, 90.4% were married and 41.9% were smokers. There were 152 cases (40.5%) in drinking. 87 patients (23.2%) had family history; 54 patients (14.4%) had co-morbidities or complications; other demographic characteristics and diseases are shown in Table 1.

Table 1. General demographic characteristics and disease status of the respondents (n=375)

Variable	Feature	Number of cases (example)	Percentage (%)
Gender	Male	177	47.2
	Female	198	52.8
Age	60~65	216	57.6
	66~70	78	20.8
	71~75	81	21.6
Living situation	Living alone	24	6.4
	Live with family	332	88.5
	Live with friends	19	5.1
Educational level	Elementary school or below	268	71.5
	Junior high school	83	22.1
	High school or secondary school	24	6.4
Marriage	Unmarried / divorced / widowed	36	9.6
	Married	339	90.4
Medical payment method	self-paying	77	20.5
	Free medical service	134	35.7
	NCMS	164	43.7
Personal monthly income (yuan)	No stable income	103	27.5
	<2000	181	48.3
	2000~4000	80	21.3
	>4000	11	2.9
Religious faith	YES	52	13.9
	NO	323	86.1
Number of children	0	3	0.8
	1	15	4.0
	2	202	53.9
	3	107	28.5
	4 or more	48	12.8
Smoking status	Not smoking	218	58.1
	Smoking	157	41.9
Drinking status	Not drinking	223	59.5
	Drinking	152	40.5
History of hypertension	>10 years	14	3.7
	<1 year	253	67.5
	5~ 10 years	70	18.7
	>10 years	38	10.1
Family history	YES	87	23.2
	NO	213	56.8
	Unknown	75	20.0
Complications	NO	321	85.6
	YES	54	14.4
Number of hospitalizations (times)	0	261	69.6
	1~5	112	29.9
	>5	2	0.5

3.2 Elderly support hypertension social support score

As shown in Table 2, the social support score includes three dimensions: objective support, subjective support, and support utilization. The objective support score was 3 to 12 points (mean 7.62 ± 1.86 points); the subjective support score was 8 to 26 points (mean 20.45 ± 4.04 points); the support utilization score is 3 to 10 points (average 6.70 ± 1.94 points); the total score is 16 to 45 points (average 34.77 ± 6.36 points). Compared with the national norm, the scores of all dimensions and total scores were lower, and the differences were statistically significant (P<0.05), as shown in Table 3.

Table 2. Social support scores of respondents (points)

Social support project	Minimum	Maximum	Range	Average	Standard deviation	Average percentile score
Objective score	3	12	9	7.62	1.86	34.64
Subjective score	8	26	18	20.45	4.04	56.81
Support utilization score	3	10	7	6.7	1.94	41.88
Total social support score	16	45	29	34.77	6.36	46.99

Table 3. Social support scores of elderly hypertensive patients compared with domestic norms ($\bar{x}$ ±s)

Social support project	**Community seniors (n=375)**	**Domestic norm (n=370)**	**t**	**P**	**Standard deviation**	**Average percentile score**
Objective score	7.62±1.86	12.68±3.47	-8.943**	<0.01	1.86	34.64
Subjective score	20.45±4.04	23.81±4.75	-2.361*	<0.05	4.04	56.81
Support utilization score	6.70±1.94	9.38±2.40	-7.692**	<0.01	1.94	41.88
Total social support score	34.77±6.36	44.34±8.38	-2.387*	<0.05	6.36	46.99

*P<0.05;**P<0.01

3.3 Single factor analysis of influencing factors of social support in elderly hypertensive patients

The outcome showed that age, personal monthly income, religious beliefs, number of children, smoking status, drinking status, history of hypertension, living conditions, medical payment methods, and chronic disease management scores had impacts on objective support scores (P<0.05). Age, education level, personal monthly income, religious beliefs, number of children, smoking status, drinking status, history of hypertension, family history, co-morbidities or complications, number of hospitalizations, medical payment methods, family history, disease cognition score and chronic disease management score had an effect on the subjective support score (P<0.05). The scores of support utilization was related with age, education level, personal monthly income, religious beliefs, smoking status, drinking status, history of hypertension, hospitalizations, housing status, medical payment methods, family history, disease recognition and chronic disease management(P < 0.05). The study also found that age, education level, personal monthly income, religious beliefs, number of children, smoking status, drinking status, co-morbidities or complications, number of hospitalizations, medical payment methods, disease recognition scores, chronic disease management scores influenced social support scores(P <0.05). More details were summarized in Table 4.

Table 4. Univariate analysis of social support levels

		Objective score		Subjective score		Utilization score		Total social support score	
		r	P	r	P	r	P	r	P
Gender		-0.092	0.075	0.006	0.904	-0.071	0.169	-0.067	0.192
Age		0.115*	0.026	-0.127*	0.014	-0.162**	0.002	-0.121*	0.019
Educational level		0.025	0.629	0.222**	0	0.228**	0	0.250**	0
Marriage		0.016	0.761	0.094	0.069	0.008	0.878	0.077	0.138
Personal monthly income		0.325**	0	0.178**	0.001	-0.133**	0.01	0.159**	0.002
Religious faith		-0.168**	0.001	-0.198**	0	-0.140**	0.007	-0.240**	0
Number of children		0.110*	0.034	-0.123*	0.017	-0.076	0.14	-0.102*	0.049
Smoking status		-0.195**	0	0.104*	0.044	0.323**	0	0.155**	0.003
Drinking status		-0.155**	0.003	0.110*	0.033	0.288**	0	0.173**	0.001
History of hypertension		0.174**	0.001	-0.119*	0.021	-0.156**	0.002	-0.097	0.06
Family history		0.036	0.489	0.117*	0.024	-0.054	0.295	0.061	0.237
Complications		0.096	0.062	0.140**	0.007	0.048	0.351	0.142**	0.006
Number of hospitalizations		0.05	0.33	-0.211**	0	-0.363**	0	-0.260**	0
Living situation	Living alone	-0.101	0.05	0.089	0.084	0.09	0.081	0.067	0.194
	Live with family	-0.088	0.088	-0.033	0.52	0.109*	0.034	-0.029	0.579
	Live with friends	0.241**	0	-0.051	0.323	-0.260**	0	-0.033	0.52
Medical payment method	self-paying	-0.385**	0	0.366**	0	0.532**	0	0.358**	0
	Free medical service	-0.059	0.252	-0.426**	0	-0.404**	0	-0.457**	0
	NCMS	0.365**	0	0.115*	0.026	-0.037	0.47	0.150**	0.004
Disease cognition score		-0.087	0.094	0.217**	0	0.419**	0	0.240**	0
Chronic disease management score		0.190**	0	0.116*	0.025	0.185**	0	0.186**	0

*P<0.05;**P<0.01

3.4 Multiple linear regression analysis of factors influencing social support in elderly hypertensive patients

Table 5 shows the result of multiple linear regression analysis.The degree of education, smoking status, hospitalization, disease cognition score, chronic disease management score, living with friends, and self-paying were the main influencing factors of supportive utilization scores in elderly hypertensive patients (P<0.05). The main influencing factors of social support scores includes educational level, family history, and chronic disease management scores (P<0.05).

Table 5. Multiple Linear Regression Analysis of Influencing Factors of Social Support

Variable		Partial regression coefficient	Partial regression coefficient standard error	Standardized regression coefficient	t value	P value
Utilization score	Constant	2.507	1.845		1.359	0.175
	Educational level	0.297	0.144	0.092	2.071	0.039
	Smoking status	0.533	0.227	0.136	2.352	0.019
	Number of hospitalizations	-0.375	0.176	-0.092	-2.129	0.034
	Disease cognition score	0.02	0.007	0.134	2.981	0.003
	Chronic disease management score	0.016	0.004	0.153	3.79	0
	Live with friends	-1.167	0.365	-0.132	-3.199	0.002
	self-paying	3.937	1.478	0.821	2.664	0.008
Total social support score	Constant	21.426	7.221		2.967	0.003
	Educational level	1.393	0.562	0.131	2.477	0.014
	Family history	1.072	0.459	0.111	2.338	0.02
	Chronic disease management score	0.074	0.016	0.221	4.6	0

4. Discussion

4.1 Analysis of social support status of elderly hypertensive patients

Social support is an available resource that is important in promoting individual disease prevention and health. The results of this study showed that the social support status of elderly hypertensive patients was poor, and the scores of all dimensions were lower than the national standard level. This may be because elderly hypertensive patients have long suffered from the health damage and economic burden of high blood pressure. Besides, aging, lack of education, income and child care, disconnection from social development, and awareness of disease causes and the management of chronic diseases deficiency have further reduced the level of social support.

4.1.1 Analysis of the objective support level obtained by elderly patients with hypertension

Objective support includes material direct assistance as well as the existence and participation of social networks and group relationships. The results of this study showed that 6.4% of elderly hypertensive patients live alone, which is not conducive to adequate family support. 75.6% of patients have no stable income or income less than 2000 yuan monthly, so they cannot obtain reliable economic security. 20.5% of patients lacking the necessary medical insurance need to pay for their own medical care, which increased the financial burden of patients. The objective support score was lower than the national level, and the difference was statistically significant ($P<0.05$).

4.1.2 Analysis of subjective support level obtained from elderly hypertensive patients

Subjective support refers to the emotional experience and satisfaction of individuals who are respected and supported in society, closely related to the subjective feelings of individuals. The results of this study showed that the subjective support score was lower significantly than the national level ($P<0.05$). Among them, patients got more support from family members, while neighbors, friends, groups, organizations and other families were limited. In terms of family support, elderly hypertensive patients with good marital status and more children received higher scores. This is because harmonious family conditions can give them more spiritual support. As for the support outside the family, due to the fact that patients has a misunderstanding of the disease as well as retirement, the social interaction is reduced and thus the social support is weakened.

4.1.3 Analysis of the support utilization of social support for elderly hypertensive patients

There is a difference in the degree of individual utilization of social support. The results of this study showed that only a small number of patients actively participated in the activities and would actively ask for help when they met difficulties. The support utilization score was lower than the national standard level significantly ($P<0.05$), which showed that patients were not making full use of existing social support resources. Multiple linear regression analysis showed that the degree of education, family history, and chronic disease management scores were the main influencing factors. Owing to the high level of education, it is easier for patients to seek various ways to get support and meet their own needs. Patients with a family history are more likely to overlook the health risks of hypertension.

5. Suggestions

The acquisition of social support requires mutual involvement. It requires both subjective and objective support, as well as recipient access and utilization support. Social support plays a vital role in the treatment of patients with hypertension. The construction of an effective social support system, to a certain extent, can improve the compliance of drug treatment and the quality of life of elderly hypertensive patients from a psychological level. However, the results of this study showed that the social support scores of elderly hypertensive patients in Guangzhou community were lower than the norm. Therefore, the construction of social support networks requires the whole society to make efforts.

5.1 Strengthen existing social support networks and build new social support networks

With aging, the increase of disease burden and the decline of quality of life, the gap between the elderly and the society is becoming more and more obvious. The elderly people are increasingly in a vulnerable group. This invisible isolation and generation gap affects the level of support around them as well as their acceptance and utilization of support. Therefore, the existing social support network should be strengthened. Firstly, family members should be guided to give patients more attention and support. Secondly, the community should carry out group activities actively to help patients establish good interpersonal relationships and find spiritual support for mutual support. Medical staff should also give patients more care and help during the treatment. In addition, communication groups can be established as a beneficial method to encourage patients to share experiences and feelings to build a new social support network.

5.2 Government and chronic disease related health institutions should pay attention to the provision of social support

The government and relevant health agencies play an irreplaceable role in providing a wider and more diverse support for the social support of hypertensive patients. The first is to improve the medical insurance system and carry it forward to reduce the economic burden of patients. The second is to enrich the knowledge of hypertension and improve the patient's disease awareness. The government should work hard to promote the education of high blood pressure patients, helping them better understand the disease, eliminate fear, increase their attention, and seek help actively.

The third is to strengthen the management of chronic diseases and mutual interaction between doctors and patients. Advancing the management level of chronic diseases can help them to conduct self-management more scientifically and actively, which is helpful to conduct the hypertension and better living standards.

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