

# Effect of Community Nutrition Intervention on Hypertension, Hyperglycemia and Hyperlipidemia in the Middle-aged and Elderly

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**Keywords:** Community Middle - Aged; Nutrition Intervention; Quality of Life

**Abstract.** Objective: To address the characteristics of the middle aged and elderly residents' chronic diseases in the community and to implement community nutrition interventions to control their high blood pressure, hyperglycemia and hyperlipidemia. Methods: The 90 middle aged and elderly residents of the community, whose blood pressure and/or blood glucose and/or blood lipid is/are above the critical level, were treated with nutrition intervention in two and one half months, and the healthy changes of them were compared before and after the intervention. Results: The blood pressure, blood glucose and blood lipid levels of the middle aged and elderly in the community were significantly decreased. At the same time, the physical function of the residents was improved according to the SF-36 simple scale, and the female's life quality changed more than the male's. Conclusion: The implementation of effective community nutrition intervention is effective in controlling high blood pressure, hyperglycemia and hyperlipidemia in the middle aged and elderly in the community, but psychological and physiological intervention should be carried out simultaneously.

## Introduction

Hypertension, hyperglycemia and hyperlipidemia and other chronic diseases and many diseases, the occurrence, development, death or death are closely linked to the health of our elderly have a great impact, is now threatening the quality of life of the main factors, according to the recent chronic diseases The status report (2015) shows that in 2012 I do not have 18.2 years old and older adults with a prevalence of hypertension of 25.2%, much higher than the 18.8% in 2002; and the prevalence of diabetes is 9.7 (2016) The number of patients close to 100 million, and showed a rapid growth trend. On the quality of life of the elderly population in China caused a huge threat. In theory, with the growth of age, the body's function will gradually decline, blood pressure, blood lipids have increased the trend of impaired glucose tolerance, but theoretically, these problems are related to nutritional supplements. Therefore, we envisaged through the community nutrition intervention to reduce the elderly in the blood pressure, blood sugar and blood lipid levels, for which I work group in Langfang City, four communities for a period of two and a half months of nutrition intervention to observe the intervention effect.

## Object and Method

**Object.** From July 2015 to mid-September 2015, four community residents in Langfang City were selected to use the multi-stage stratified random sampling method to collect the residents aged 45 to 85 as the baseline survey. After receiving medical examination, the book finally identified 90 subjects, with a male to female ratio of 1: 1. (1) systolic blood pressure  $\geq 19\text{Kpa}$  (140mmHg) or diastolic blood pressure  $\geq 12\text{Kpa}$  (90mmHg); (2) fasting venous blood glucose  $\geq 5.6\text{mmol / L}$  or 2 hours postprandial blood glucose  $\geq 7.8\text{mmol / L}$ ; (3 ) Serum cholesterol  $\geq 5.7\text{mmol / L}$  or serum triglycerides  $\geq 1.7\text{mmol / L}$ . 83 of the subjects completed the entire experimental process, accounting for 92.2% of the total sample.

**Intervention Measures.** Health education and health promotion services Community health care: health education and health promotion mainly in the form of small seminars, the main content of the talks related to high blood pressure, diabetes and hyperlipidemia prevention knowledge education, community residents to tell the normal range of hypertension , Fasting and postprandial 2 hours

normal range of blood glucose, as well as the formation of blood lipids and high cholesterol, and stressed the importance of regular measurement of hypertension, blood sugar and blood lipids, told community residents of high blood pressure or high blood sugar can be non-drug Treatment to achieve blood pressure, hypoglycemic, and maintain the normal range. Community health care work mainly to the community residents to introduce community health planning steps and the implementation of the significance of what is the meaning of the community residents to clear national health policy guidelines to strengthen community health education in community residents "know - letter - line ".

**Exercise:** participate in my work group 90 cases of research objects to promote sports exercise. As we all know, obesity is high blood pressure, diabetes, hyperlipidemia and many other chronic diseases, one of the major risk factors, we encourage residents to participate in aerobic exercise or endurance exercise mainly to choose their favorite and appropriate sports, such as walking, Qigong, tai chi, tai chi fan, square dance, shuttlecock and other forms of exercise, the weight control in the ideal range. Here, we mainly introduce the body mass index (BMI) to the community residents, and introduced the calculation method:  $BMI = \text{weight (kg)} / \text{height}^2 \text{ (m)}$ , the normal range of 18.5-23.9, if higher than 25.0, or obesity. You should actively exercise, as far as possible to maintain the appropriate weight.

**Dietary intervention:** the development of dietary principles and the preparation of recipes, according to the 2007 "Chinese residents' dietary guidelines" and the Chinese residents balanced diet pagoda were designed dietary principles and the development of personal recipes. For the three high patients stressed that excessive salt intake easily lead to increased blood pressure, the elderly population should be low sodium diet ( $\leq 6\text{g} / \text{day}$ ); pay attention to regular feeding time, every seven or eight full; encourage people to eat green leafy vegetables and Beans; advocate low-fat low-sugar low-salt diet;

**Intervention Evaluation.** The use of health education "knowledge - letter - line" (KAP) blood pressure, blood sugar, blood lipid physiological and biochemical indicators and quality of life and other three indicators to evaluate the effect of a number of interventions. ① SF-36 health survey cut (this table was developed in 1988 by Stewartse developed medical results based on the scale, developed by the United States Boston Health Research .199 years of Zhejiang University School of Medicine, Department of Social Medicine translation of the Chinese version of the SF -36.), The table in China's urban and rural residents in the trial with good self-confidence and validity. The SF-36 Quality of Life Scale assesses the eight areas of quality of life: physical activity (field 1), physical activity on the role of function (field 2), pain (field 3), overall health self- Vitality (field 5), social function (domain 6), emotional impact on the role of function (domain 7) and psychological function (field 8). ②SF-36 evaluation method: the same quality of life in the field of problem scores added, and then converted to 0-100 of the standardized points, the higher the score that the better the quality of life. Before and after the intervention, the subjects were divided into two surveys. The scores of the subjects were compared before and after the intervention. The differences were compared with the quality of life before and after the intervention. Participants in the two life quality health survey questionnaire were eligible for 83 cases, accounting for 92.2% of the completed survey.

**Statistical Analysis.** The questionnaire results into the computer, using SPSS statistical software for data analysis, comparison between groups using paired t test and chi-square test to  $p < 0.05$  was statistically significant.

## Research Results and Analysis

Intervention measures before the implementation of the study of blood pressure, blood sugar and blood lipids (see Table 1)

Table 1 Intervention measures before the implementation of blood pressure, blood glucose and blood lipids (n = 90)

Blood Pressure	Normal Blood Sugar			High Blood Sugar			Total
	Normal Lipids	Blood	High Lipids	Normal Lipids	Blood	High Lipids	
Normal	0		16	8		12	36
High	8		16	10		20	54
Total	8		32	18		32	90

From the data in Table 1, we can see that the basic situation of the study subjects selected by our team before the implementation of the intervention measures: the average age of 66.5 years, the minimum 45 years old, the largest 85 years old, men and women half. The degree of education is not high.

Table 2 Changes in blood pressure, blood glucose and blood lipid before and after intervention ( $\bar{x} \pm S$ )

Index	Before Intervention	After Intervention	T	P
Systolic Blood Pressure (Kpa)	19.54 ± 2.69	16.30 ± 5.24	5.563	0.000
Diastolic Blood Pressure (Kpa)	11.72 ± 1.80	9.52 ± 3.17	5.487	0.000
Fasting Blood Glucose (Mmol/L)	5.10 ± 3.54	4.10 ± 2.81	4.125	0.000
2 Hours Postprandial Blood Sugar (Mmol/L)	7.98 ± 2.58	6.72 ± 3.93	4.351	0.000
Serum Cholesterol (Mmol/L)	5.58 ± 1.25	5.10 ± 0.62	5.633	0.000
Serum Triglycerides (Mmol/L)	1.70 ± 0.88	1.61 ± 1.05	2.634	0.01

Table 3, before and after intervention subjects blood pressure, blood sugar, blood lipid cure rate (%)

Index (1)	Pre-Intervention High (2)	High After Intervention (3)	Cure Rate % (4)	X <sup>2</sup> (5)	P (6)
Systolic Blood Pressure (Kpa)	53	17	49	204.00	0.000
Diastolic Blood Pressure (Kpa)	34	10	70	17.326	0.000
Fasting Blood Glucose (Mmol/L)	36	17	53	9.654	0.005
2 Hours Postprandial Blood Sugar (Mmol/L)	42	25	40	6.871	0.01
Serum Cholesterol (Mmol/L)	48	13	72	30.376	0.000
Serum Triglycerides (Mmol/L)	40	23	43	7.057	0.009

From the table two can be seen after health education, exercise and diet and many other interventions, the study of changes in physiological and biochemical indicators (Table 2) significantly, blood pressure, blood glucose and lipid values were significantly decreased ( $p < 0.01$ ); And Table 3 is from the physiological and biochemical indicators of recovery rate (cure rate) on the changes in the situation, from Table 3 (6) box can be obtained, the song in the biochemical indicators of the P value ( $P < 0.01$ ) Significant statistical significance.

Changes in the quality of life of the study subjects before and after the implementation of the intervention (see Table 4):

Table 4, changes in the quality of life of the subjects before and after the intervention ( $\bar{x} \pm S$ )

field	Score scale of our country			P*
	Old control	Before intervention	After intervention	
Body function	81.79 $\pm$ 12.89	78.45 $\pm$ 15.96	83.07 $\pm$ 14.67	0.003*
Role (physical effect)	72.46 $\pm$ 23.02	71.61 $\pm$ 40.10	80.21 $\pm$ 36.15	0.137
pain	79.38 $\pm$ 20.36	74.78 $\pm$ 13.65	73.12 $\pm$ 17.23	0.547
Health self evaluation	62.62 $\pm$ 15.45	57.34 $\pm$ 17.38	57.65 $\pm$ 16.69	0.889
vitality	71.60 $\pm$ 16.49	67.44 $\pm$ 19.01	65.32 $\pm$ 16.65	0.376
Social function	80.22 $\pm$ 22.02	81.65 $\pm$ 21.09	81.55 $\pm$ 19.11	0.747
Role (emotional influence)	80.79 $\pm$ 34.01	72.97 $\pm$ 40.56	81.35 $\pm$ 32.81	0.082
Psychological function	77.04 $\pm$ 16.34	76.89 $\pm$ 14.56	72.97 $\pm$ 14.47	0.012*

Note: P value for the intervention before and after the paired t test,  $P < 0.05$  from the statistical significance.

According to the statistical value of each field, only the domain 1 "somatic function" and the domain "8 mental functions" are obtained by calculating the standard scores in the field of life quality before and after the calculation of the standard scores. In the intervention process, the epidemiological analysis of the field 1 "physical function" sex effect is obvious, female readme "physical function" improvement compared with men  $P < 0.001$ . In this intervention, the effect of intervening sex The difference is obvious, can be used to understand the compliance, middle-aged women's compliance with the doctor's advice is often better than men, and the sensitivity of the subjective function is also higher than the middle-aged men, therefore, in the quality of life scale survey The "somatic activity function" of female reports is much greater than that of men. Followed by the intervention in the activities of the psychological function of a significant decline in the phenomenon (Table 4, the field of 8 "psychological function"  $P < 0.05$ ). In contrast, it intervenes before and after the score value, not a rise of twenty down a lot, and our scoring principle is the higher the better. From this data analysis we try these interventions are to make the subjects in terms of health education or from the movement to understand the chronic non-communicable diseases of our lives and the quality of life hazards, the formation of a certain fear, crisis sense and sense of urgency, thereby promoting changes in their behavior and putting them into action. However, from the indicators in the intervention activities can be seen, sometimes one-sided emphasis on negative stimuli is a certain limitation, this negative stimulus can easily lead to intervention in the psychological and social function of the deterioration, ignoring the improvement of quality of life, in the during the intervention, there was such a result. Therefore, in our similar health education and publicity process, not only should be emphasized that the risk factors may bring a variety of hazards, the implementation of the intervention should also be psychological counseling, so that the intervention in the formation of changes in the risk of behavior at the same time, But also establish to overcome the risk factors, improve health status, improve the quality of life confidence. In the intervention process should promptly inform the intervention of various interventions, and the implementation of encouragement to interfere with the object to overcome the difficulties and establish a healthy confidence.

## Discussion

As chronic diseases are difficult to cure, community prevention has become the world's major measures to control chronic non-communicable diseases. Among the risk factors of chronic diseases, 69% are related to behavioral factors, and health education is the only effective way to intervene so far. In health education, let each other understand and familiarize themselves with various risk factors that are harmful to health and understand To these risk factors can be eliminated, not only can reduce the high blood pressure, high blood sugar, high blood lipids caused by a variety of cardiovascular and cerebrovascular diseases, improve the quality of life of patients with cardiovascular and cerebrovascular diseases, but also conducive to the prevention and treatment of other diseases. The cooperation between the patient and the medical worker depends on the patient's

compliance, and the compliance depends on the patient's knowledge (knowledge), attitude (letter), behavior (line), and "knowledge, the foundation is the grassroots health propaganda to pay education. Therefore, in the community to carry out chronic disease prevention and control process, to strengthen the various chronic diseases incentives, clinical symptoms and other aspects of health education is necessary, enumerate the various chronic diseases, bad habits of chronic disease risk factors will be the lowest. From the effect of this intervention can be seen, health education, the study significantly improved from the quality of life scale score can also be seen that the effect is obvious.

Exercise and dietary intervention are important means of community intervention in chronic disease prevention and treatment. The appropriate exercise for high blood pressure, high blood sugar and high cholesterol, obesity and other chronic diseases have a good treatment and prevention. Therefore, long-term adherence to appropriate exercise, for high blood pressure, diabetes, hyperlipidemia patients have unexpected effect, but each person according to their own circumstances to develop in line with their own exercise program to fit the principle of fatigue, Beliefs, during the pay attention to blood pressure, blood sugar and blood lipid changes in physiological and biochemical indicators. Second, the "reasonable diet, reduce weight, control oil limit salt, smoking cessation limit alcohol, emotional stability" on high blood pressure, high blood sugar and hyperlipidemia patients also have a significant effect, therefore, the correct nutrition diet guide to develop good eating habits For the community residents is essential.

In summary, through the community nutrition intervention in the elderly in the high blood pressure, high blood sugar and hyperlipidemia and other chronic diseases is feasible: the community in the elderly leisure time, in the economic conditions greatly improved under the premise of more concerned about their own health, they prefer to listen to health talks on the prevention and treatment of chronic diseases, and are willing to make diet adjustment, can better comply with the medical staff of various health advice. Although the majority of older people are not culturally high, theoretically, this may affect the effect of intervention to a certain extent, but after this study found that, despite the intervention, the low level of education of middle-aged and elderly population nutrition knowledge Less than the culture of the elderly in the circle, but after the intervention, the difference between the two eliminated. But also in the physiological and biochemical indicators and changes in the quality of life indicators, also found no difference in cultural level. It shows that the interventions we apply are suitable for people of different cultural levels, and the middle - aged people with low educational level are bigger and more obvious in the improvement of "knowledge - trust - line". In addition, in the intervention process, we also found that the lower education of the elderly in the elderly than the high degree of education is better. Therefore, the community nutrition intervention in the elderly in the elderly hypertension, hyperglycemia and hyperlipidemia is effective, the prevention and treatment of community chronic disease has the feasibility of promoting.

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