Dietary educational intervention to control hypertension in hypertensive adult

Nazia Yousef[1], Muhammad Hussain[2], Sofia Kausar[3], Hajra Ahmed[4], Zaheer Ahmed[5]

ABSTRACT

This Randomized controlled trial was conducted over seventy hypertensive adult over three months, from 1st June 2018 to 30th Oct 2018. The volunteers aged 30-60 years attending regularly outpatient department with systolic > 130 mm hg, diastolic > 80mm hg were selected and assigned into 2 groups, i.e. Intervention and control, by simple random lottery method. For twelve weeks, only intervention group were given DASH education. Both groups were checked for DASH knowledge, attitude, and systolic diastolic blood pressure, before and after education session. Before and after intervention session, systolic blood pressure, diastolic blood pressure, knowledge and attitude of controlled group remained insignificant. Significant role of educational intervention was concluded on systolic blood pressure, diastolic, dietary approach to stop hypertension knowledge and dietary approach to stop hypertension attitude among hypertensive patients.

Keywords: (DASH) Dietary approach to stop hypertension, (SBP) Systolic blood pressure, (DBP) Diastolic blood pressure, Knowledge, Attitude, Hypertensive adult

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INTRODUCTION

Hypertension is a most commonly chronic disease all over the world[1] Hypertension known as two or more accurate reading of 140 mm hg or elevated systolic blood pressure and at a level of 90 mm hg or elevated diastolic blood pressure known as[2]. Hypertension can be found in any part of age but more frequent occurred in adult age. Complications of high blood pressure are coronary heart diseases strongly associated with hypertension and other risk factors also contributing with Coronary Heart Disease (CHD) including renal diseases, diabetes mellitus and high serum cholesterol level etc[3].

1. Lecturer of Nutrition, Superior University Lahore
2. Associate Professor of Nursing, University of Lahore
3. Nutritionist of Liver Transplant Unit, Sheikh Zayed Hospital Lahore
4. Chairperson of Environmental Design, Health and Nutritional Sciences, AIOU, Islamabad
5. Associate Professor of Environmental Design, Health and Nutritional Sciences, AIOU, Islamabad

Correspondence:
Nazia Yousef
Research Faculty, Superior University Lahore
Email: naziayousif19@gmail.com

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Predicted age of a person worldwide is 60 years and it will be increase to 21% by 2050, also observed risk age of chronic diseases. Pakistan being a developing country also faces double burden of these chronic diseases[4]. Most common age of hypertension is 45 to 75years about 63% hypertension fond in age of 60 to 65 years, 266.9 million hypertensive people in age of 53 to 56 years has been reported in China. About 26.8% in the United State of America and 45.1 % hypertensive population has been reported[5].

Annual death rate due to high blood pressure in Pakistan has been reported 12%. Prevalence of in age of 15 years is 17.9% and prevalence of hypertension in urban area 21.5% and in rural area 16.2 % has been reported in Pakistan. Over all based prevalence is 26%community[3]. An important wide-reaching public health apprehension is defectively controlled hypertension because of its morbidity, mortality, and monetary load more than ever among grown-up adults[6]. DASH is an adjustable dietary plan with no additional distinct food and fulfill daily nutritional requirement. This plan suggests consumption of whole grains, fruits and vegetables. Poultry and fat-free or low-fat dairy products, fish, nuts, vegetable oils and beans. Restricted intake of high saturated fat foods, sweetened drinks and sweets[7,8].

Dietary approach to stops hypertension DASH decreases the SBP by 6 mm Hg and DBP by 3 mm Hg in patients with pre-hypertension (Systolic 120-139 mm Hg, diastolic 80-89 mm Hg). Hypertensive people (Systolic ≥140mm Hg, diastolic ≥90mm Hg) reduced by 11 and 6mm Hg, correspondingly. No body weight deviation was observed due to these blood pressure alterations (U.S. Department of Health and Human Services.,

2006). DASH also decreased 10-year risk of heart attack and bad cholesterol (LDL)[9,10]. A randomized controlled trial tested two hypotheses that increased fruits and vegetables consumption decrease the blood pressure, and a DASH plan with high vegetables, nuts, fruits, fish rather chicken or meat, dairy foods with low fat, lowers blood pressure. 459 volunteers with < 160 mmHg and diastolic blood pressure 80–95 mmHg blood pressure were recruited for 8 week to receive fruit, vegetable or DASH diet. And explored that DASH plan may alternate the drug treatment of hypertension[11-13]. A few studies have also been done in Pakistan on DASH. But no study is reported till now about the significant role of DASH in the management of hypertension. The present study was aimed to explore the effect of didactic intervention regarding dietary approach to stop hypertension (DASH) on hypertensive patient's blood pressure, knowledge and attitude.

METHODOLOGY

This 8 weeks randomized control trial with parallel design using 1:1 allocation ratio was conducted at outpatient department Punjab Institute of Cardiology (PIC) Lahore, to check the effect of didactic intervention regarding dietary approach to stop hypertension (DASH) on hypertensive adults. Seventy volunteers were selected and divided into two group intervention and controlled by simple randomized lottery method, 35 participants in each group. Hypertensive patient aged 30-60 years attending regularly at Punjab institute of cardiology outpatient department Lahore, with hypertension systolic > 130 mm hg and diastolic > 80 mm hg were included in study after written informed consent from study participants and written ethical permission also obtained from institutional review board. The study groups were not exposed to any harm or risk and their data was kept confidential. Less than 20 years age, patient diagnosed with secondary hypertension, any mental and physical ailment that may interfere the intervention like deafness and blindness were excluded from study.

Knowledge, attitude, systolic and diastolic blood pressure of intervention group was checked before didactic intervention. Then DASH education was given to intervention group.

The intervention group was not using any medication and any other herbs for controlling blood pressure. After 8 weeks of education session Knowledge, attitude, systolic and diastolic blood pressure of intervention group was again checked. Pre–tested questionnaire was used for demographic, attitude and knowledge data collection[14] for hypertensive patients. It was consisted of demographic information like age, gender, education, residence and smoking, 10 knowledge questions were asked with minimum score 0 and maximum 10. Attitude assessment consisted of 4 questions and score range was 0-4. Mercury sphygmomanometer was used to measure blood pressure before and after intervention.

Knowledge, attitude, systolic and diastolic blood pressure of control group was checked. The control group was not using any medication and any other herbs for controlling blood pressure and no dietetic education was given to control group.

After 8 week Knowledge, attitude, systolic and diastolic blood pressure of control group was again checked. Pre–tested questionnaire was used for demographic, attitude and knowledge data collection[14] for hypertensive patients. It was consisted of demographic information like age, gender, education, residence and smoking, 10 knowledge questions were asked with minimum score 0 and maximum 10. Attitude assessment consisted of 4 questions and score range was 0-4. Mercury sphygmomanometer was used to measure blood pressure before and after intervention.

Data was analyzed by using SPSS version 20.0. Data was condensed by frequencies and distributions. Chi square test was used to compare the categorical variables. Paired t test was applied to compare the before and after intervention mean differences. Level of significances was set as P<0.05.

RESULTS

Data of seventy participants were collected by using pre-tested questionnaire. Three domains were checked, 10 knowledge question with score range 0-10, 0 for no knowledge and 1 for having knowledge. 4 attitude questions with 0-4 score range 0 for negative attitude and 1 for positive attitude. Systolic and diastolic BP pre and post intervention were checked.

Table-I: Demographical characteristics and other risk factors of study participants (N=70)

	Variables	N %age	S.D	P Value
groups	Intervention G1	35 (50%)	-	-
	Controlled G2	35 (50%)		
Age	31-40Years	3 (4.7%)	0.5721	0.758
	41-50 years	37 (52.6%)		
	51-60 years	30 (42.7%)		
Gender	Male	33(46.6%)	0.5027	0.44
	Female	37 (53.4%)		
Educational status	Uneducated	35 (50%)	1.009	0.087
	Primary	24 (33.7%)		
	High School	5 (7.5%)		
	College	4 (5.9%)		
	University	2 (2.9%)		
Residence	Urban	45 (63.9%)	0.4826	0.144
	Rural	25 (36.1%)		
Smoking	Smoker	15 (21.6%)	2.17	0.244
	Ex-Smoker	5 (9.2%)		
	Non Smoker	50 (69.4%)		

Level of Significance p-Value <=0.05

Abbreviations: (G1) group 1, (G2) group 2

Frequency distribution of groups, age, gender, education, residence and smoking was checked. Chi square association was checked between categorical variables and blood pressure. Level of significance was less than equal to 0.05. All risk factors and demographic age, gender, smoking, education, and residence were found to be insignificant as depicted in Table-I.

Table-II: Knowledge, Attitude and Blood Pressure assessment of both groups N=70

Study groups	Mean	Paired mean difference	p-Value
Knowledge			
Pre intervention Group 1	2.8	-5.59286	0.000
Post intervention Group 1	8.3429		
Pre intervention Group 2	2.2	0.54286	0.016
Post intervention Group 2	1.6571		
Attitude			
Pre intervention Group 1	1.4571	-2.05714	0.000
Post intervention Group 1	3.5143		
Pre intervention Group2	1.7714	0.28571	0.067
Post intervention Group 2	1.4857		
Blood pressure			
Pre intervention SBP Group 1	143	23.14286	0.000
Post intervention SBP Group 1	119.8571		
Pre intervention DBP Group 1	90.5714	15.85714	0.000
Post intervention DBP Group 1	74.7143		
Pre intervention SBP Group 2	147.4286	4.57143	0.15
Post intervention SBP Group 2	142.8571		
Pre intervention DBP Group 2	91	-3.7142	0.011
Post intervention DBP Group 2	94.7143		

Level of Significance P-Value <=0.05

Abbreviations: (SBP) Systolic blood pressure, (DBP) Diastolic blood pressure

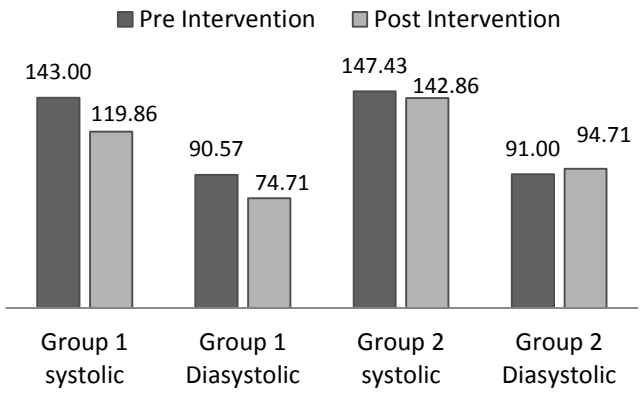

Figure-1: Changes in blood pressure before and after education intervention (N=70).

Level of Significance: P-Value <=0.05

In this study there was no momentous changes in blood pressure, knowledge and attitude regarding DASH in group 2 (control group).

Knowledge, Attitude and Blood Pressure: As regard to comparison between pre and post intervention mean knowledge regarding DASH, in group 1 there were significant change with mean difference -5.59286. And mean remained insignificant in group 2 as p value was 0.016. In collation of both groups participants attitude regarding DASH, Pre intervention mean score of group 1 attitude was 1.45 and post-intervention was 3.51, paired mean difference was statistically significant as p value was 0.000. In group 2 paired mean differences was 0.285 and was insignificant as shown below in table 2. Pre and post intervention, systolic and diastolic changes of blood pressure between intervention (G1) and control group (G2) was compared. Remarkable decrease in SBP and DBP systolic with mean difference of 23.14286 and 15.85714 respectively. While in controlled group mean difference remained statistically insignificant depicted in table-I and figure-1.

DISCUSSION

This study was aimed to explore the effect of didactic intervention regarding dietary approach to stop hypertension (DASH) on hypertensive patient's blood pressure, knowledge and attitude. Three domains were checked to assess the effect of DASH educational intervention, knowledge, attitude, and blood pressure.

Before intervention there was no difference in knowledge and attitude of both intervention and controlled group this may due to the same education and social setup and this was similar to a study[15].

In the current study health education regarding DASH diet played an important role and statistically significant effect was explored on knowledge of intervention group with mean difference -5.59286 and p value was 0.00. This finding were aligned with a study[16].

After didactic intervention period the knowledge of volunteers in controlled group remained insignificant as they were not given education, with mean difference 0.54286 and p value 0.016 and this result also similar to other studies finding[17,18].

In Present study respondents were assessed for before and after intervention attitude. There was insignificant attitude before intervention. Similar to the finding of a study conducted by[19] revealed that before intervention participants have insignificant attitude toward DASH diet. Pre interventions mean score of intervention attitude was 1.45 and post-intervention was 3.51, paired mean difference was -2.05714, statistically significant as p value was 0.000. In controlled group paired mean difference was 0.285 and was insignificant as p value was found to be as 0.067. These results corresponds with the results of studies[20]

Before intervention there was no remarkable mean difference in both SBP and DBP between intervention (143 systolic and 90 diastolic) and controlled group (142systolic and 91 diastolic). These findings aligned with the results of a study[21].

Significant effects of didactic education on SBP and DBP in intervention group were explored as mean difference was 23.14286 in systolic and 15.85714 in diastolic blood pressure and p value was 0.000. In contrast a study by[22] resulted insignificant effects on BP of both experimental and control groups.

As controlled group were not given health education, there was statistically insignificant mean difference between pre 147 SBP, 91 DBP and post 142 SBP 97 DBP assessment of controlled group and these results were matched with[23].

CONCLUSION

Significant role of educational intervention was concluded on

systolic blood pressure, diastolic, dietary approach to stop hypertension knowledge and dietary approach to stop hypertension attitude among hypertensive patients.

AUTHOR'S CONTRIBUTION

Yousef N: Conceived idea, Designed research methodology, Data analysis.
Hussain M: Data collection, Data coding
Kausar S: Manuscript writing, Data analysis, Finalized the manuscript.
Ahmed H: Literature review**.**
Ahmed Z: Final critical review of manuscript.

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