

Dietary Modification: The Best Non Pharmacological Intervention for Hypertensive Clients

S Bankim¹, Kanika², Uma Deaver³

*Nursing Tutor, department of community health nursing, M.M College of nursing, Maharishi Markandeshwar University, Ambala, Haryana, India

**Assistant Professor, M.M College of Nursing, Maharishi Markandeshwar University

Associate Professor, M.M College of Nursing, Maharishi Markandeshwar University, Ambala, Haryana, India

Abstract: Introduction: The second half of the twentieth century witnessed major health transitions in the world, propelled by socio-economic and technological changes that have profoundly altered life expectancy and ways of living while creating an unprecedented human capacity to use science for both prolonged and enhanced life. Among these health transitions, the most pervasive change has been the rising burden of non-communicable diseases (NCDs). It is estimated that more than 7 million people died every year all over the world because of hypertension and its complication, while 1 billion men and women worldwide experience pre hypertension or hypertension.¹ Objective: The objective of this study was to assess the "Effectiveness of non-pharmacological intervention in terms of dietary modification adopted by hypertensive clients residing in rural community areas of Ambala District, Haryana, India" Methods: Total sample of the study was 60. The research design selected for the study was pre- experimental "one group pre test post- test design". Results: The mean scores of post test knowledge scores (8.53) was higher than mean pre test knowledge score (5.48) with the mean difference of 3.050 the computed t value of 12.32 was found to be statistically significant at 0.05 level of significance which shows that there was significant difference in the mean pre test and post test knowledge score. Similarly, the mean score of post test expressed practices score (43.48) was higher than mean pre test expressed practice score (43.12) with the mean difference of 5.350 the computed t value of 10.028 was found to be statistically significant at <0.0001 level of significance which shows that there was significant difference in the mean pre test and post test expressed practices scores. Thus it was inferred that non pharmacological intervention in terms of dietary modification was effective in enhancing the knowledge of hypertensive clients. Conclusion: The results of the study show that the non pharmacological intervention in terms of dietary modification was effective in enhancing the knowledge and practice of hypertensive clients.

Keyword: Non-pharmacological intervention, Dietary modification, Effectiveness, Hypertensive clients.

1. Introduction

Since the late 1980s when public attention were more focused readily on health promotion, the demand of information for explaining the factors that motivate the people in seeking health potential has been rising (Pender, 1996). More recently, the specific components of health behavior and lifestyle that emphasis on quality of life ,rather than the duration of the survival have become the focus of health promotion research.²

The World Health Organization i.e. an organization that brings up this issue. It contends that health promotion includes encouraging healthy lifestyles, creating supportive environments for health, strengthening community action, reorienting health services, and building public health policy (Goeppinger, 1993; Pender 1996). Hence, there is a need to know why raised blood pressure is dangerous and how it can be kept under control if certain modifications are done in the lifestyles practices individual.³

The Global Burden of disease projected that 6.4 million deaths would occur due to cardiovascular disease (CVD) in the developing countries by 2020 in the age group of 30-69 years. There are 139 million uncontrolled hypertension patients worldwide, out of which India accounts for 15 per cent of world's uncontrolled hypertension patients. In

Haryana state alone, (7.9%) of the total population is suffering from hypertension, out of which 38.2% are in Ambala district.

According to Dr Anand Pandey, Senior Cardiologist, Max Hospital, as India's population is in large, the absolute number of people with hypertension will be quite high. Various studies conducted within and across the population have linked several nutrients, minerals, food groups and dietary pattern with the increase and decrease of cardio vascular disease. There are several non pharmacological interventions for controlling hypertension, such as physical activity, yoga, relaxation techniques, and dietary patterns. These interventions modify the risk factors responsible for the development of hypertension and its complication.

This study focuses on assessing the dietary modification adopted by hypertensive clients as a non pharmacological intervention. Several studies prove that diets rich in fruits , vegetables , whole grains, low fats dietary product, refined carbohydrate , and low sodium can lower blood pressure. A DASH study was conducted on 459 adults of age 22 years and older who had systolic blood pressure lower than 160 mm hg and diastolic blood pressure from 80 to 90 mm Hg . Over a period of 8 weeks, these adults were assigned to 3 diet groups and found that for participants with stage 1 hypertension (BP 140/ 90,159/99 mm Hg) ,the DASH plans

were even more effective in reducing the systolic blood pressure by an average of 11mm hg and diastolic blood pressure by 6 mm Hg. This shows that DASH diets can lower blood pressure significantly.⁴

2. Material and Methods

The research approach adopted for the study was pre experimental one group pre test post test design. The study was conducted in Budion Village of Ambala districts Ambala, Haryana. Purposive sampling technique was adopted to obtain sample. The present study was conducted on 60 hypertensive clients from age group 35-65 years.

The tool used for the data collection were semi structured questionnaire to assess the dietary pattern of hypertensive clients before and after the diagnosis of hypertension ,structured questionnaire on expressed practices regarding hypertensive diet and structured questionnaire on knowledge regarding hypertensive diet. Reliability of tool was calculated by using Kuder – Richardson₂₀, Cronbach's alpha found to be 0.74 and 0.70 respectively.

The pilot study was conducted in the month of October 2013. The final study was conducted in the month of November 2013. A pilot study is a small scale version or trial done in preparation of the major study. The purpose of the pilot study is twofold to make improvement in the research project and detect a problem that can be eradicated before the major study is attempted.

After obtaining formal permission from the surpanch of Budion village Ambala Haryana pilot study was conducted in the month of October 2013 ten hypertensive clients were selected by purposive sampling techniques. The subjects were informed regarding the objectives of the study and written consent was obtained. Blood pressure and weight of hypertensive clients was checked and recorded. The data was collected using Semi structured questionnaire to assess the dietary pattern of hypertensive clients before and after the diagnosis of hypertension, structured questionnaire on expressed practices regarding hypertensive diet and structured questionnaire on knowledge regarding hypertensive diet.

Five to six hypertensive clients were interviewed in a day. It was found that it took approximately 25-30 minutes to complete the data collection. On first day pre test was conducted followed by individualized teaching program. The post test was conducted after eight days after where blood pressure and the knowledge of hypertensive clients were rechecked. Findings of the pilot study revealed that the non pharmacological intervention was effective in improving the knowledge and expressed practices. And it was feasible to conduct the study. The plan of statistical analysis was determined. The plan for data collection remains the same as for the final data collection study because the investigator did not face any problem while conducting the pilot study.

RESULTS: The results of the study show that non pharmacological intervention in terms of dietary

modification was effective in enhancing the knowledge of hypertensive clients.

Table 1: Frequency and percentage distribution in terms of stages of blood pressure before and after non pharmacological intervention (NPI) , N=60

Stages of blood pressure	Before (NPI) f%	After (NPI) f%
Normal	25(41.6)	43(71.6)
Pre hypertension	50(83.3)	42(70)
Grade 1	22(36)	12(20)
Grade 2	3(5)	2(3.33)

The data in table 1 represented less than half 41.6% of clients had normal blood pressure before the non pharmacological intervention and 71.6% had normal blood pressure after the non pharmacological intervention. Majority of the clients 50 (83.3%) of them had pre hypertension before non pharmacological intervention and 42(70%) of them had pre hypertension after non pharmacological intervention. Less than half of the client had grade1

Table 2: Mean, Mean difference, Standard Deviation of difference, Standard error of mean difference, and "t" value of pre test and Post test Knowledge Score of Hypertensive Clients, N=60

Knowledge score	Mean	Mean D	SD _D	SE _{MD}	t" value	"P value
Pretest	5.48					
		3.050	1.917	0.227	12.323*	>0.0001
Post test	8.53					

*significant ('t' > 0.05 level) table =2

The data presented in the table 2 showed the mean scores of post test knowledge scores (8.53) was higher than mean pre test knowledge score (5.48) with the mean difference of 3.050 the computed t value of 12.32 was found to be statistically significant at 0.05 level of significance which shows that there was significant difference in the mean pre test and post test knowledge

Table 3: Mean, Standard Deviation, Median of pre and post test Knowledge score of Hypertensive clients, N=60

Knowledge score	Range possible	Range actual	Mean \pm SD	Median
Pre test	12	8	5.48 \pm 1.631	6
Post test	12	4	8.53 \pm 0.999	9

Max score- 15 Min - 0

The data presented in table 3 suggest that the mean post knowledge score (8.53) was higher than the mean pre-test knowledge score (5.48). The findings also revealed that the post-test knowledge scores were more homogeneous (SD 0.999) than pre-test knowledge scores (SD 1.631).

Table 4: Mean, Mean difference, Standard Deviation of difference, Standard error of mean difference, and "t" value of pre test and Post test Knowledge Score of Hypertensive Clients, N=60

Knowledge score	Mean	Mean D	SD _D	SE _{MD}	t" value	"P value
Pre test	5.48					
		3.050	1.917	0.227	12.323*	>0.0001
Post test	8.53					

*significant ('t' > 0.05 level) table =2

The data presented in the table 4 showed the mean scores of post test knowledge scores (8.53) was higher than mean pre test knowledge score (5.48) with the mean difference of 3.050 the computed t value of 12.32 was found to be statistically significant at 0.05 level of significance which shows that there was significant difference in the mean pre test and post test knowledge score. Thus it can be inferred that non pharmacological intervention was effective in enhancing the knowledge of hypertensive clients regarding dietary modification.

Table 5: Mean, Standard deviation, Median of pre and post test Expressed Practice score of Hypertensive clients, N=60

	Range Possible	Range Actual	Mean \pm S.D	Median
Pre Test	45	16	43.12 \pm 3.561	42
Post Test	45	9	48.48 \pm 2.012	48

Max score-60 min score-12

The data presented in table 5 indicate that the mean post test expressed practice score (48.48) was higher than the mean pre-test expressed practice score (5.48). The findings also revealed that the post-test expressed practice scores were more homogeneous (SD 2.012) than pre-test knowledge scores (SD 3.561).

Table 6: Mean, mean difference, standard deviation of difference, standard error of mean difference and 't' value of pre test and post test expressed practices of hypertensive clients, N=60

	Mean	Mean _D	SD _D	SE _{MD}	't' value	P value
Pre Test	43.12					
		5.350	4.133	0.52	10.028*	>0.0001
Post Test	48.48					

*Significant ('t' > at 0.05 level), 't' value=2

The data presented in the table 6 revealed the mean score of post test expressed practices score (43.48) was higher than mean pre test expressed practice score (43.12) with the mean difference of 5.350 the computed t value of 10.028 was found to be statistically significant at <0.0001 level of significance which shows that there was significant difference in the mean pre test and post test expressed practices scores Thus it can be inferred that non pharmacological intervention in terms of dietary modification was effective in enhancing the knowledge of hypertensive clients

Table 7: Correlation between the knowledge and expressed practices of dietary pattern of hypertensive clients in terms of dietary pattern, N=60

	Pre test knowledge	Post test knowledge	r value
Pre test practice	0.060	0.025	0.254 ^{NS}
Post test practice	0.054	0.009	

df 58=0.254, ^{NS} = Not Significant

The data in table 7 indicates the calculated (coefficient of correlation)'r' value (0.254) is higher than the calculated value, which shows no relationship between expressed practices scores and the knowledge scores of dietary pattern in hypertensive clients

Table 8: Correlation between blood pressure and body mass index of hypertensive clients, N=60

Blood pressure	BMI	P value
Pre systolic	-0.184 ^{NS}	0.158 ^{NS}
Pre dystolic	-0.225 ^{NS}	0.083 ^{NS}
Post systolic	-0.207 ^{NS}	0.1126 ^{NS}
Post dystolic	-0.221 ^{NS}	0.0904 ^{NS}

df (58)=0.279, ^{NS} non significant(p \leq 0.05)

The data in table 8 reveals that there is no significant correlation found between blood pressure and BMI among hypertensive clients.

3. Discussion

The study shows that the non pharmacological intervention in terms of dietary modification was effective in enhancing the knowledge and practice of hypertensive clients. In this study 41% of the clients had normal blood pressure before the non pharmacological intervention which was increased to 71.6% after the non pharmacological intervention mainly the dietary pattern. A similar type of comparative study on the dietary pattern modification and the effect on blood pressure was conducted by Claudia S Plaisted et al reported that changes in health score improved significantly p<0.05 as compare to that of control group.

In the present study mean post test knowledge score (8.53) was higher than the mean pre test knowledge score (5.48). nearly similar type of findings were reported by Wendy Zernike ie the mean valued obtained to comparison of pre test and post test group revealed as significant increased in knowledge level after receiving educational program.

In the present, there was no significant relationship between the blood pressure and BMI before and after the non pharmacological intervention, secondly the study did not find the relationship between blood pressure and BMI among males and females. But Jay S. Kaufman, Michael CASuzu conducted a study to identify the relationship Between Blood Pressure and Body Mass Index and found that age-adjusted slopes of BP on BMI were uniformly higher in men than women, and concluded that there are relationship between BMI and blood pressure for women but not for men.

In the present study the researcher performed home to home survey and performed an individualized teaching on hypertensive diet found that the non pharmacological intervention was effective which shows an improved in knowledge score as the pre test knowledge score 47(78.3%) of the hypertensive clients had good knowledge and 13(21%) had poor knowledge regarding hypertensive diet while in post test knowledge score 10(16.6%) had very good knowledge score 50(83.3%) had good.

Nearly similar type of studies were reported by Amanda G Ribeiro, Sonia MR Ribeiro et al which reveals that nutritional orientation at the household level strategy promote grater adherence to dietary changes and found statistically significant in improvement in clinical, anthropometric biomedical and dietary parameter.

The life style and demographic are changing worldwide prompting shift in food consumption patterns and disease trends. Diet and lifestyle modification are universally accepted as a very important aspects for not only management of hypertension but for prevention of hypertension.

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Hence the study aimed to conduct non pharmacological intervention for managing and preventing the hypertension in terms of dietary modification among hypertensive clients residing in rural area.

4. Conclusion

The results of the study show that the non pharmacological intervention in terms of dietary modification was effective in enhancing the knowledge and practice of hypertensive clients.

5. Recommendations

On the basis of the study conducted, certain suggestions are given for future studies:

- A similar study can be replicate on large population.
- A comparative study can be done on different age group and between male and female.
- The selected variables in the study i.e. age, gender, education, occupation, dietary habits, family history of hypertension and duration of diagnosis can be studied independently.
- A study can be carried out to assess the overall quality of life of hypertensive clients.
- Similar studied can be done to find out the predisposing factors of hypertensive clients.
- A study can be done in the lifestyle modification of hypertensive clients.
- A study can be done on importance of weight reduction for the hypertensive clients

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