

THE EFFECT OF STRUCTURED COUNSELLING ON LIFESTYLE MODIFICATION MEASURES AMONG ADULT HYPERTENSIVE PATIENTS IN A TERTIARY HOSPITAL IN NORTH CENTRAL NIGERIA.

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ABSTRACT

Aim: The study was undertaken to determine the effect of structured counseling on lifestyle modification measures among adult hypertensive patients.

Methods: The study was a randomized controlled trial involving hypertensive adults aged 20 years and above presenting in GOPC of JUTH. Participants were consecutively selected and randomized to an intervention group that was offered structured counselling on lifestyle modification and a control group that was offered routine advice only. Participants were followed up monthly for twelve weeks and adherence to lifestyle modification measures noted. The proportion of observed changes were analysed using chi square and Fischer's exact tests. Data was analyzed on an intention-to-treat basis. A *p*-value of <0.05 was considered significant in all analyses.

Results: Changes in lifestyle measures was notably more among the intervention group, especially in the dietary intake of fruits and vegetables and aerobic exercise.

Conclusion: There is a better adherence to lifestyle measures with a more structured counselling.

INTRODUCTION

Hypertension is defined as systolic blood pressure of (SBP) ≥ 140 mmHg or diastolic blood pressure (DBP) of ≥ 90 mmHg, based on "two or more properly measured seated blood pressure (BP) readings on each of two or more office visits".¹ Management of hypertension by lowering BP into a more optimal range can be expected to lower cardiovascular disease (CVD) risks and BP related morbidities. Hypertension is associated with a decreased life expectancy, increased hospitalizations, increased health care costs and serves as a precursor to CVD.^{2,3} Although treatment of hypertension is mostly pharmacological, lifestyle changes is redefining this range of BP and emphasizing the role of health care providers in its management.⁴

Current recommendations for the prevention and treatment of high BP emphasize non-pharmacological therapy, also termed "lifestyle modification". JNC-7 recommends lifestyle modification for all patients with hypertension and prehypertension.^{5,6} These modifications include:

1. Reducing dietary sodium to less than 2.4g per day
2. Increasing exercise to at least 30 minutes per day, four days per week
3. Limiting alcohol consumption to two drinks or less per day for men and one drink or less per day for women. One standard drink contains 10g of alcohol e.g one bottle of beer = 2.6 standard

drinks

4. Following the dietary approaches to stop hypertension (DASH) eating plan (high in fruits, vegetables, potassium, calcium and magnesium, low fat and salt)
5. Achieving a weight loss goal of 4.5kg or more
6. Cessation of smoking (not recommended in JNC 7).

The aim of this study, was to determine the effect of structured counselling on lifestyle modification on adherence to these lifestyle measures among hypertensive adults.

METHODOLOGY

The study was conducted between February to May 2012 among individuals aged 20 years and above presenting in the General Outpatients Clinic (GOPC) of Jos University Teaching Hospital (JUTH). The study was a randomized controlled trial, comprising an intervention group that received structured counseling on lifestyle modification and a control group that was only advised on lifestyle modification. Using the Power of 80% and a 95% confidence level, the sample size for means was used for the study and 60 participants were recruited, with thirty in each group. Patients with a systolic blood pressure of ≥ 140 mmHg and/or diastolic blood pressure of ≥ 90 mmHg were included. Information collected included the participants' socio-demographic data, history of alcohol ingestion, hypertension and smoking, current exercise activity and a 24-hour dietary recall.

Blood pressure readings were recorded to the nearest even number and the mean of three recordings computed. All patients in the intervention group were counseled and advised concerning diet and exercise using a structured format. They were given written diet and exercise instructions in either English or Hausa and asked to keep an exercise diary. They were asked to return for follow up at four, eight and twelve weeks. At each follow up visit, the instructions were reviewed and repeated according to the structured format in order to reinforce them. The blood pressure was recorded at each follow up visit as described above. The duration of exercise each day was also recorded. The control group did not receive any structured

counseling concerning diet and exercise. They were only advised on exercise and a healthy diet.

Data was analysed using Epi Info version 3.5.3 (Centres for Disease Control and Prevention, Atlanta, Georgia, USA).⁷ Background descriptive analysis was done to compare both groups. The primary outcome variable of interest was blood pressure. The proportions of categorical variables were compared using the χ^2 test and the Fisher's exact test. A p value of 0.05 was considered significant in all analyses

The flow of the study is depicted in Figure 1 below:

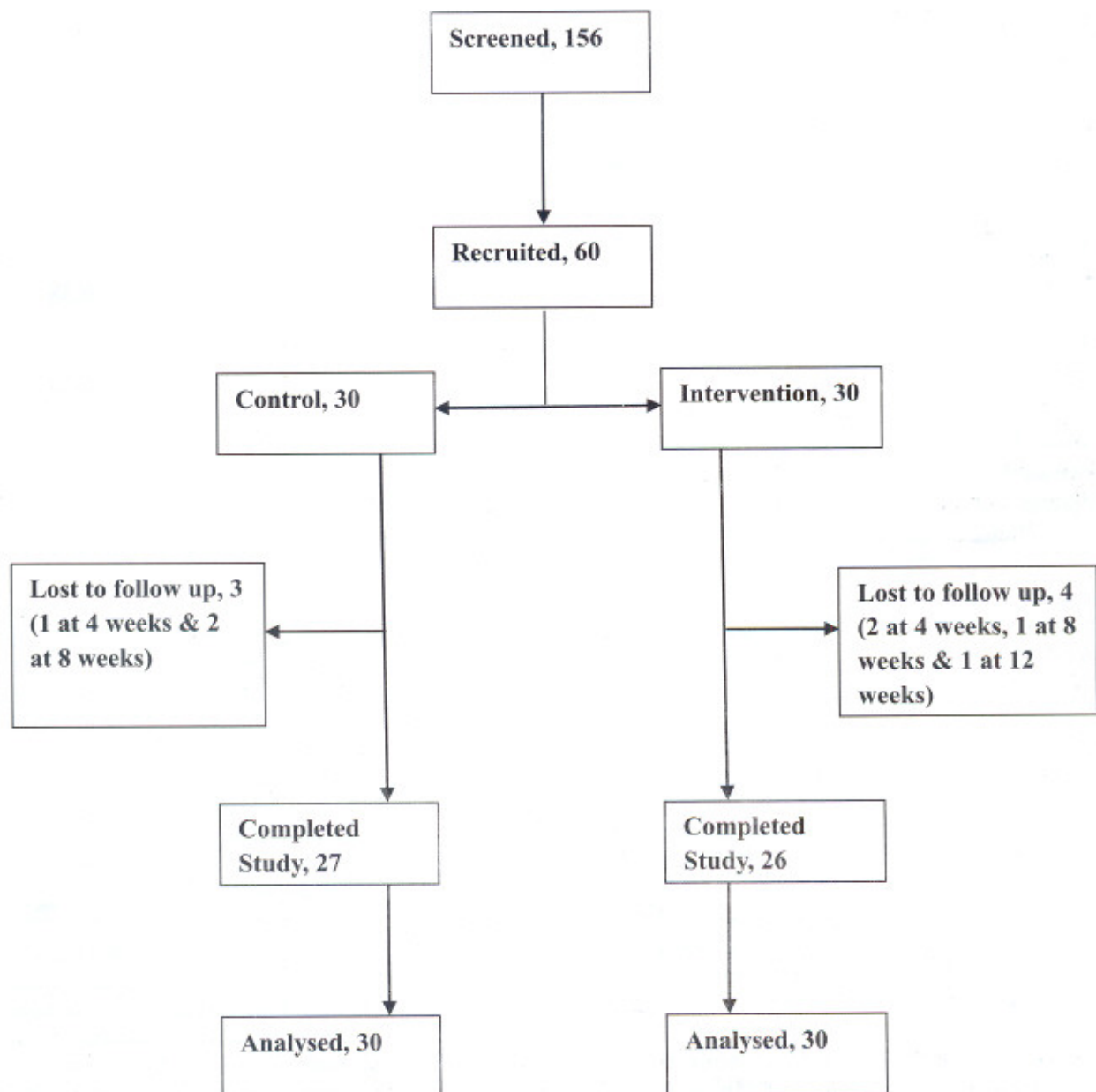


Figure 1: Trial profile of participants in the study.

RESULTS

Table 1: Sociodemographic characteristics:

	Control group N=30	Intervention group N=30	p value
Mean Age (years)	48.64±9.78	48.22±10.46	0.87
Age category(years)			
20-29	2	1	
30-39	3	4	
40-49	10	9	
50-59	10	12	
60-69	5	4	
Gender:			0.77
Male	8	9	
Female	22	21	
Educational Level:			0.92
None	12	12	
Primary	4	5	
Secondary	6	7	
Tertiary	8	6	
Marital Status:			0.38
Married	26	28	
Single	4	2	
Religion:			0.60
Christian	19	17	
Muslim	11	13	
Ethnicity			0.39
Plateau People	20	23	
Non- Plateau People	10	7	

Lifestyle Habits

Alcohol consumption: At baseline, sixteen (26.67%) participants in the control group and 19 (31.67%) in the intervention group had a current history of alcohol consumption in the form of beer, wine, whisky and local brew, of more than two standard drinks per day and a duration of at least one year. Post intervention, nine (15%) participants in the control group and 12 (20%) in the intervention group had reduced alcohol consumption ($p=0.04$).

Cigarette smoking: No participant in either the control group or the intervention group had a current history of cigarette smoking, and none had resumed or started smoking during the study.

Exercise: At enrollment, nine participants (15%) from the control group and ten (16%) from the intervention group were involved in some form of regular aerobic exercise. The control group exercised for an average of two days per week for an

average of 34.5 minutes per day while the intervention group also exercised for an average of two days per week but for an average of 37 minutes per day. Among those that exercised, the most common exercise undertaken was brisk walking in both groups, comprising seven (77.7%) participants in the control group and five (50%) in the intervention group. At the end of the study, 25 (54.3%) participants from the control group and 22 (47.8%) from the intervention group were involved in some form of regular aerobic exercise ($p=0.18$). The control group exercised for an average of three days per week for an average of 32 minutes per day while the intervention group exercised for an average of four days per week for an average of 35 minutes per day. The most common exercise undertaken was brisk walking in both groups, with 13 (43.3%) participants in the control group and 15 (50%) in the intervention group ($p=0.68$). Jogging, skipping, climbing staircases, cycling, tennis, football and other forms of aerobic exercises made up the

remaining.

Dietary pattern: Based on a 24-hour dietary recall and estimated from the average equivalent of the DASH diet, the dietary pattern of participants in the study groups were compared. All patients in both groups had less than the expected daily servings of fruits with 63.3% and 70% of participants having less than the expected daily servings of fruits and vegetables in the control and intervention groups respectively. Of the total study participants, 93.3% of the participants in the control group had more than the expected daily servings of fats and oils versus 96.7% in the intervention group while 70% of the control group had more than the expected daily servings of grain and grain cereals versus 76.7% in the intervention group. Only 13.3% of the control population had the expected value for lean meat, poultry or fish against 10% of the intervention population. Only 10% of the control population had some form of nuts, seeds or legumes and in required daily amounts at enrollment versus 6% in the intervention group. All participants in the study group were taking more than the expected daily servings of more than one teaspoon full of salt either in prepared meals or on the table or both.

On completing the study, 47.2% of the control group

had the expected daily servings of fruits against 67.8% of the intervention group ($p=0.03$). The control and intervention groups comprised 47.7% and 56.3% of participants who had the expected daily servings of vegetables respectively ($p=0.035$). In the control group, 11.4% had the expected daily servings of fats and oils versus 18.3% in the intervention group ($p=0.58$). The control group was made up of 27.8% who had the expected daily servings of grain and grain cereals which was comparable with 34.9% in the intervention group ($p=0.41$). Only 41.1% of the control group had the expected servings for lean meat, poultry or fish against 38.9% of the intervention group ($p=0.63$). On completion of the study, 9.3% of the control group had some form of nuts, seeds or legumes versus 11.4% of the intervention group ($p=0.29$). All participants in both study arms had reduced their salt intake at the end of the study. Figure 3 compares the post-intervention dietary pattern between the control and intervention groups based on a 24-hour dietary recall.

Based on a 24 hour dietary recall and estimated from the average equivalent of the DASH diet, the dietary pattern of participants in the study groups were compared at baseline and on completing the study (Figures 2 and 3).

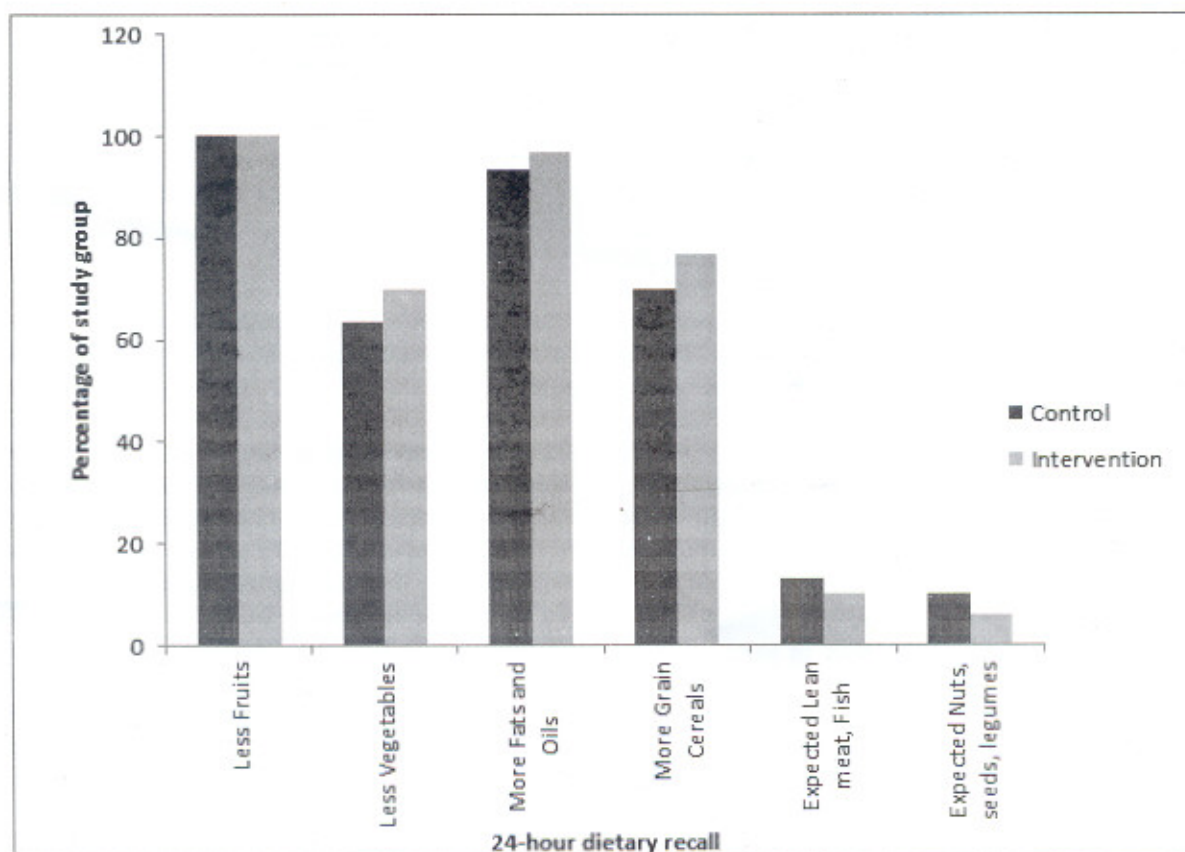


Fig 2. Baseline dietary pattern of the control and intervention groups based on a 24 hour dietary recall

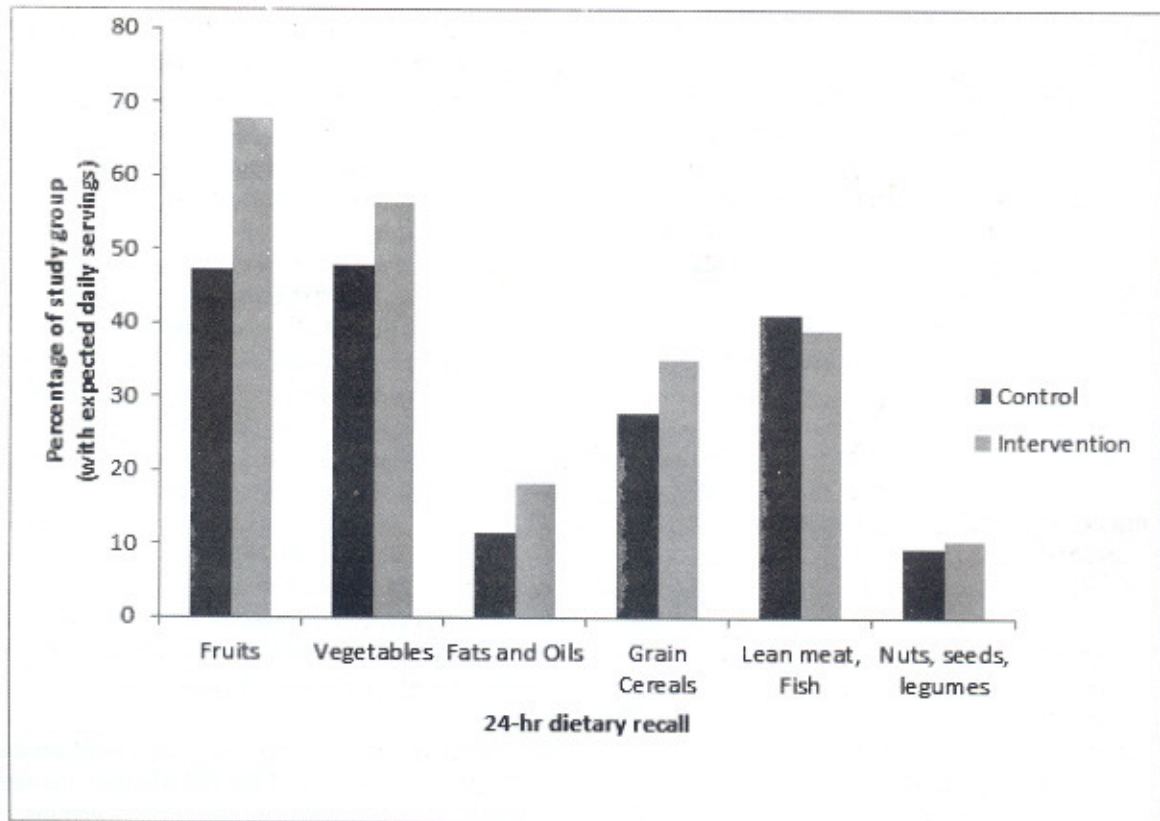


Fig 3. Post-intervention dietary pattern of the control and intervention groups based on a 24-hour dietary recall.

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DISCUSSION

Dietary Pattern: Although only the intake of fruits and vegetables showed statistical significance, on the average, more of the participants in the intervention group significantly increased their intake of fruits, vegetables, and dairy products and further reduced their intake of grain cereals, saturated and total fats when compared with the control group. This was also seen in systematic reviews on counseling to promote healthy diet in adults where improved dietary habits were noted after counseling.^{8,9}

In both groups the reduction in sodium intake was not sufficient to achieve the complete PREMIER and JNC-VII goals of no more than 100 mmol/day (\leq one teaspoon full of salt per day).¹⁰ Palatability concerns of meals may have largely contributed to this poor adherence and this was in keeping with similar other studies.⁸⁻¹²

Exercise: Post intervention, although there was a higher percentage of participants involved in regular physical activity in the control group, the intervention group on the average, showed an increased duration of such exercise in a day and a higher frequency of days of exercise per week. The

intervention group may have had a better outcome conceivably due to better quality of exercise despite the fact that changes in the various forms of exercise among the two groups were not statistically significant. This outcome was similar to a meta-analysis of 54 randomized controlled trials whose intervention and control groups differed in aerobic exercise.¹³

A longer period of study and additional research may have shown a statistical significance between the two groups.

Alcohol Consumption: Post intervention, sixty three percent of participants in the intervention group had reduced their alcohol consumption from greater than two standard drinks per day to two standard drinks per day or less compared to 56% in the control group. More participants in the intervention group had therefore reduced their alcohol consumption and this was statistically significant. This was similar to findings reported in a randomized controlled trial of general practitioner intervention in patients with excessive alcohol consumption.¹⁴

Overall, the evidence favors moderation of alcohol intake to currently recommended limits as was applied in the present study.

CONCLUSION

This study shows that structured counselling on lifestyle modification is associated with better adherence to lifestyle changes than routine advice only.

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