



To evaluate the effectiveness of dash (dietary approach to stop hypertension) diet education with telephonic follow up on compliance to dash diet & blood pressure among hypertensive patients. A narrative review

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Abstract

Background & Objective: Dietary approach to stop hypertension (DASH) eating pattern, a diet which is rich in fruits, vegetables, whole grains and low-fat dairy with a reduced content of sodium, saturated fat, and total fat is introduced as an appropriate diet for hypertension. This eating point was especially designed to normalize blood pressure in hypertensive patients, and a large body of data could confirm its beneficial effects on blood pressure level.

Methods: Pub-med, EBSCO data bases, Google scholar data bases were searched for reviews regarding compliance to DASH diet.

Conclusion: It is emphasized that DASH diet is suitable for whole life span. Evidenced also confirm the beneficial effects of DASH diet on hypertensive patients and other metabolic disorders. So based on the existing facts, it can be concluded that DASH diet is a good dietary pattern for both controlling the metabolic risk factors and being healthy.

Keywords: dietary approach to stop hypertension, compliance, adherence, hypertension, patients

1. Introduction

The dietary approach to stop hypertension (DASH) is currently recommended as one of the essential lifestyle measures for controlling as well as reducing high BP, which is approved by several national guidelines committees and now is recognized as the best diet for the prevention and management of high blood pressure (BP). DASH diet emphasizes mainly on fruits and vegetables, low-fat dairy foods and whole grains, is one of the most widely prescribed dietary modifications for reducing blood pressure and cardiovascular disease risk. Notably, in the Nurses' health study, greater adherence to a DASH diet was associated with a lower risk of coronary artery disease and stroke. In the US, hypertension is the most common primary diagnosis with 35 million patients' visits annually. Based on data 2007 to 2010, over \$50 million is spent in treating one of every three adults 20 years of age or older in the US who have hypertension, 82% are aware of their condition, and 75% of those diagnosed with hypertension are managed with antihypertensive medications.

Dash diet focusing on dietary education, which included face to face dietary counseling, phone calls, and mailing as well as texting messages as a reminders also observed a significant reduction of systolic blood pressure (SBP) and diastolic blood pressure (DBP) respectively. A better understanding on the method used to examine compliance will help researcher to evaluate the impact of the DASH diet education, and hence to develop effectiveness to improve the dietary compliance and enhance patients outcomes. This article reviews the consistency of blood pressure results regarding proven dietary intervention (DASH diet education) as well as several new dietary targets.

1.1 Need for the study

Hypertension is a serious public health problem. Poor compliance to antihypertensive medication, physical exercise, dietary control, lifestyle modification is the biggest obstacles in therapeutic control of high blood pressure. Long-term adherence with antihypertensive drug therapy is poor.

There is need of research studies to be conducted to improve therapeutic compliance by educating regarding DASH diet and sending messages through mobile phones as reminders, so as to control blood pressure to minimize Coronary Heart Disease, stroke and other complications of hypertension. By educating the hypertensive patients about consuming DASH as their daily diet can be effective to control their blood pressure. Hence, Investigator felt that there is need to conduct study to evaluate the effectiveness of DASH diet education.

1.2 Aim

The aim of this narrative review is to find the research evidences of the effectiveness of DASH diet education on compliance to DASH diet & blood pressure.

1.3 Objective

To systematically assess the clinical effectiveness of DASH diet education with telephonic follow up on compliance to DASH diet & blood pressure among hypertensive patients.

2. Methodology

2.1 Search Methods

An electronic search of articles published in various journals has been done from 2009-2018. Search was restricted to

only English language. The database search was Pub-med, EBSCO data bases & Google scholar and article containing following key search term were retrieved.

2.1.1 Search Strategy

Effectiveness[All Fields]"dietary approaches to stop hypertension"[MeSH Terms] OR DASH diet[Text Word]"education"[MeSH Terms] OR "education"[MeSH Terms] "patient compliance"[MeSH Terms] OR "compliance"[MeSH Terms] OR compliance[Text Word]DASH DIET[Text Word]"hypertension"[MeSH Terms] OR Hypertension[Text Word]

2.1.2 Types of studies: Experimental study, Correlational study or observational study.

2.1.3 Types of participants: Hypertensive patients.

2.1.4 Settings: Community, Health centers.

2.1.5 Outcome: The outcome of this narrative review suggests that there is an effectiveness of DASH diet education and it plays an important role in reducing high blood pressure.

3. Result

Out of 7 article, 3 study states that participants have greater adherence and compliance to DASH diet. 1 study is showing that participants under hypertension with type 1 DM are more adhere to DASH as compared to participants of type 2 DM, 1 study is showing that out of 3 group DASH diet alone & DASH diet with weight mgt. shows more effective result and adherence as compared to 3rd group i.e. usual control diet. 1 study shows no adherence or effectiveness.

3.1 Delivery of intervention

The systematic search was conducted by framing the terms individually and in combination with all and synonyms, also according to the database. In addition to this, a manual Pub Med search was undertaken using the keywords and search synonyms from already found articles. Initial search retrieved 2776 article over which 1224 article were selected manually. 1079 article were excluded because of duplications in two databases and irrelevant topic. Articles retrieved for more evaluation is 145. 64 full text articles were excluded due to irrelevant content. Hence, 6 articles were screened which includes quantitative studies.

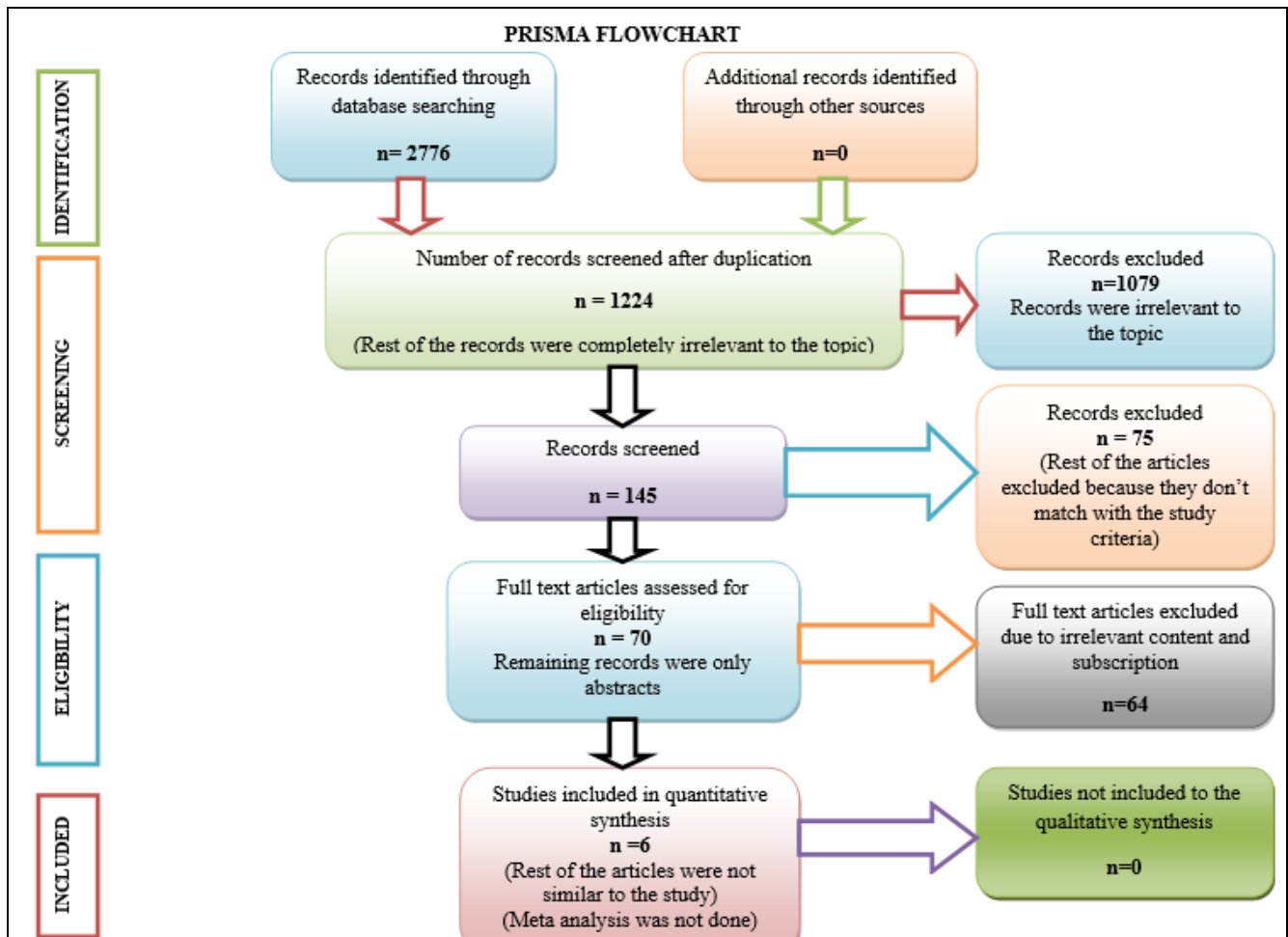


Fig 1

Table 1

S. No & Author	Source & title	Country	Variables	Instruments	Sample & sampling Technique	Design	Findings	Conclusion
1. Anke L.B. Gunther <i>et.al</i> , (2009)	Association between the dietary approaches to hypertension diet and hypertension in youth with Diabetes Mellitus	United states	Independent variable: Dietary approaches to stop hypertension diet. Dependent variable: Hypertensive youth with diabetes mellitus.	Questionnaire	2830 sample, convenient sampling technique.	Cross sectional survey	In this study findings revealed that out of 2830, 2440 was T1DM and 390 was with T2DM in which the greater adherence to DASH was associated with markedly decreased odds of hypertension in T1DM but a significant association with T2DM between DASH adherence and hypertension was not observed, the more likely reason is the limited statistical power	Present study concluded that DASH diet is widely recommended to prevent and treat hypertension. The higher adherence to the DASH eating plan was associated with decreased odds of hypertension in youth with T1DM. It also concluded that the prospective studies are needed to investigate whether advocating central aspects of DASH may help prevent and control elevated BP levels in this population. In T2DM, DASH adherence was not associated with hypertension, because of inadequate sample size.
2. Lynn L. Moore <i>et.al</i> (2011)	Dietary approach to stop hypertension (DASH) eating pattern & risk of elevated blood pressure in adolescent girls	United states	Independent variables: Dietary approaches to stop hypertension Dependent variables: Adolescent girls	Questionnaire	2185 participants, Random sampling technique	Randomized control trial	Findings revealed that girls were randomly distributed to 3 different group of dietary pattern and have 10 years of follow up in late adolescent. Girls under DASH eating trial have been shown to have important B.P lowering effect as compared to the other girls involve in different group of eating pattern.	Hence this study conclude that diet which is rich in low fat dairy products and rich in green vegetable and fruits have a beneficial effect on reduction of B.P or future risk of elevation of B.P.
3. Dawn E. Epstein <i>et.al</i> (2012)	Determinants and consequences of adherence to Dietary Approaches to Stop Hypertension Diet in African-American and White adults with High Blood pressure.	United states	Independent variable: Adherence to Dietary Approaches to Stop Hypertension. Dependent variables: African American and White Adults with high blood pressure.	Food Frequency Questionnaire	144 participants, systemic random sampling technique.	Randomized clinical trial	The findings of the present study revealed that greater post-treatment consumption of DASH foods was noted in both DASH diet alone & DASH diet plus weight management compared to usual diet controls & greater adherence to DASH diet was associated with larger reduction in clinically systolic blood pressure and diastolic blood pressure ($p \leq 0.01$).	Study concludes that the greater adherence to DASH diet was associated with larger Blood pressure reductions independent of weight loss, and it also shows that white are more likely to be adhering to DASH dietary eating plan compared with African American due to culturally sensitive dietary strategies might be needed to improve adherence to DASH diet.
4. Martin C.S Wong <i>et.al</i> (2015)	Dietary counseling with a Dietary Approaches to Stop Hypertension (DASH) diet	Hong Kong	Independent variables: Dietary counseling with DASH diet Dependent variables:	Questionnaire	556 patients, Systemic random sampling technique.	Randomized control trial	Findings revealed that about 556 Chinese patients were diagnosed newly with grade 1 hypertension in which 275 patients were randomly assigned to receive standard care by	This study concluded that there is a need of more future advanced researches based on DASH diet delivery models in more efficient manner to assess the effectiveness on DASH

	with Chinese patients with grade 1 hypertension.		Chinese patients with grade 1 hypertension.				physician & 281 patients asked to received standard care as well as DASH diet counseling by dietitian. Outcome data shows no difference in reduction of cardiovascular risk between two groups at 6 months. Hence this finding shows no support to routine referral of these patients to dietary counseling. And patient with risk factors should adhere to more clinical attention & switch to regular follow up to reduce cardiovascular risk.	diet.
5. Eman E. Orabi <i>et.al</i> (2016)	Effect of an educational intervention about dietary approach to stop hypertension (DASH) on changing knowledge, attitude and blood pressure of hypertensive patients attending Zagazig university hospital.	Zagazig university, Egypt.	Independent variable: Educational intervention about dietary approach to stop hypertension (DASH) on changing knowledge, attitude and blood pressure. Dependent variable: Hypertensive patients	Interviewing questionnaire	132 hypertensive patients, Systematic random sampling technique.	Randomized control trial.	The finding of the present study shows that initially due to homogeneity in socio-demographic of hypertensive patients & their knowledge & attitude towards DASH diet was very low & there is no significant change in interventional group & control group seen after conducting pre test by interviewing questionnaire tool. BP of hypertensive patients was also assessed by using sphygmomanometer before conducting pre test & also assessed after conducting post test. After providing the health education session in studied group there was a significant change & improvement were seen in all items of knowledge & attitude. And also there was a reduction in BP seen in interventional group but no significant changes seen in control group. In interventional group the mean systolic B.P decreases from 144.7 before intervention to 137.4 after intervention & mean diastolic blood pressure decreases from 93.8 before intervention to 87.4 after intervention. While there is no statistical changes seen in both systolic and diastolic B.P among control group.	The following study concludes that by providing educational program for hypertensive patients about DASH diet shows a successful result in improving the knowledge and attitude of patients towards DASH & also shows the noticeable reduction of B.P level.
6. Fardin Mehrabiann <i>et.al</i>	The effect of nutrition education	University of medical science,	Independent variable: Nutrition	Food frequency questionnaire	150 hypertensive patients,	Randomized control trial	The finding of the study shows that there were about 76% of females	Present study concludes that the DASH diet education is found to be

(2018)	based on DASH diet on blood pressure & dietary adherence among patients with hypertension.	Rasht, Iran	education based on DASH diet Dependent variable: Patients with hypertension		Systematic random sampling technique		out of 150 hypertensive patients. And it revealed that all post baseline DASH diet components in the experimental group were significantly higher than that of control group. It also revealed that the systolic blood pressure in interventional group is significantly lower than that of control group which is of 2.5 months after of the intervention.	very useful & effective method to control & for reduction of B.P among hypertensive patients.
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3.3 Summary of findings

The available literature refines to get 6 quantitative.

- 3 study states that participants have greater adherence and compliance to DASH diet.
- 1 study is showing that participants under hypertension with type 1 DM are more adhere to DASH as compared to participants of type 2 DM.
- 1 study is showing that out of 3 group DASH diet alone & DASH diet with weight mgt. shows more effective result and adherence as compared to 3rd group i.e. usual control diet.
- 1 study shows no adherence or effectiveness.

Importance in Education

DASH diet education is an important part for every hypertensive patients to learn these facts about different aspects but also to apply these facts in blood pressure patients in order to get a better life. Like the same these reviews suggest that having good information and updated knowledge regarding dietary intervention on DASH diet for hypertensive patients will play an essential role to have a healthy lifestyle. Appropriate information and education of DASH diet leads to better healthy life which comes only with the education.

Future Significance

- Evidence for hypertensive patient in currently reviews.
- DASH diet is found effective in lowering blood pressure, which is currently promoted as education for patient with high blood pressure.
- While there are general health benefits associated with avoiding high saturated fat intake but promoting fruits and vegetables for hypertensive patients.
- Counseling sessions and regular follow up should be more strictly to be followed.

Limitations

- Computerized data bases were limited.
- Limited to only DASH diet to hypertensive patient and their metabolic risk factors on patients.

Strength

- Article search was carried out on a significant problem.
- Review emphasized the effectiveness of DASH diet education on blood pressure & hypertensive patients.

Weakness

- Article mainly focuses on only adherence and future effects on blood pressure by DASH diet education on hypertensive patients.

- Only 6 quantitative articles were included for data synthesis due to limitations.

Conclusion

Majority of the findings of this narrative review concludes that providing the DASH diet education or counseling to hypertensive patients plays an important role and improve the knowledge and attitude towards the consumption of such diet and shows the beneficial effects in blood pressure reduction and thus proves that DASH diet compliance level is significantly high.

Acknowledgement

- Anke L.B. Gunther *et.al*, (2009)
- Lynn L. Moore *et. al* (2011)
- Dawn E. Epstein *et.al* (2012)
- Martin C.S Wong *et.al* (2015)
- Eman E. Orabi *et.al* (2016)
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