RESEARCH ARTICLE

EFFECTIVENESSOFSELF-INSTRUCTIONAL MODULEONKNOWLEDGEREGARDING DIETARY APPROACHES TO STOP HYPERTENSION (DASH)

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Manuscript Info	*Abstract*

Background: A study was conducted to assess the effectiveness of Self-Instructional Module on knowledge regarding dietary approaches to stop hypertension among hypertensive patients in selected hospital, Sikar, Rajasthan. A total sample of 60, hypertensive patients were selected using purposive sampling technique. The objectives of the study were to assess the level of knowledge among hypertensive patientsregarding dietary approaches to stop hypertension (DASH) before and after intervention (Self Instructional module) and to determine the effectiveness of self-instructional module on level of knowledge regarding DASH among hypertensive patients. The final objective was to find out the association between pre-test level of knowledge and selected demographic variables.

Materials and Methods: A one-group pre-test post-test design was used to conduct the study. 60 hypertensive patients from selected hospital were enrolled using non-probabilitypurposive sampling technique. The conceptual framework of the study was based on Ludwig von Bertalanffy's General System Model. Tools used for data collection were demographic Performa and structured knowledge questionnaire.

Results: Data analysis was done using descriptive and inferential statistics. Findings of the study revealed that the mean post-test knowledge score **23.00±2.7** was significantly higher than the mean pre-test knowledge score **10.00±2.3** with the **'Paired t'** value computed [**31.60**, df=59**] was statistically significant (P<0.01 level). Significant association was observed between level of knowledge and gender at **0.05 level**.

Conclusion: The findings of the study confirmed tha the Self-instructional module was significantly effective in improving the knowledge regarding DASH among hypertensive patients.

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Introduction: -

Health and nutrition are the two things that go hand in hand. It has been proved that nutritional support is one of the most important therapeutic modalities of this century and perhaps, in the history of medicine. Scientifically, it is said that nutrition rests on the aspect and correlation of diet and health. Nutrition is an input to and a foundation for health. Hippocrates suggested, "Let food be your medicine." Proper nutrition leads to a healthier body. From the conception,

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the construction of the body structure in the womb starts with the food taken by the mother. On birth, breast feeding and then other forms of foods contribute to the growth of the child. Food provides the building blocks of healthy growth. Similarly nutritional status becomes very important for the heart healthy lifestyle [1]. Blood pressure is the pressure exerted by the blood against the blood vessel walls as the heart pumps. Blood pressure rises with each heartbeat and falls when the heart relaxes between beats, but there is always a certain amount of pressure in the arteries. That blood pressure comes from two physical forces. The heart creates one force as it pumps blood into the arteries and through the circulatory system. The other force comes from the arteries resisting the blood flow. A normal blood pressure reading for an adult is: 120 (systolic) / 80 (diastolic). Hypertension is the condition of having high blood pressure, systolic pressure above 140 mm Hg and diastolic above 90 mm Hg consistently for more than six months. Blood pressure changes from minute to minute and is affected not only by activity and rest, but also by temperature, diet, emotional state, posture, and medication [2]. High blood pressure adds to the workload of the heart and arteries. The heart must pump harder and the arteries must carry blood that's moving under greater pressure. If high blood pressure continues for a long time, the heart and arteries may no longer work as well as they should. Other body organs, including the kidneys, eyes, and brain also may be affected [3]. The best and recommended hypertension diet plan is DASH. DASH stands for Dietary Approaches to Stop Hypertension. It is a diet that was developed by the United States National Heart, Lung and Blood Institute (NHLBI). DASH is an effective healthy eating plan. Foods that lower blood pressure are embedded in this eating plan which is low in saturated fat, cholesterol, and total fat. Fruits and vegetables that lower blood pressure are included in DASH including fat-free or low-fat milk and milk products. This diet for hypertension also includes fish, poultry and nuts as well as whole grain products [4]. Taking Calcium, Potassium, and Magnesium supplement instead of eating these foods do not have the same effect [5].

According to WHO report 2002, about 15–37% of the global adult population has hypertension. In those older than age 60, as many as one-half are hypertensive. The WHO estimated that 600 million people with high blood pressure are at risk of heart attack, stroke and cardiac failure. Worldwide, high blood pressure is estimated to cause 7.1 million deaths, which is about 13% of the total global fatality. Across WHO regions, research indicates that about 62% of strokes and 49% of heart attacks are caused by high blood pressure. Hypertension causes five million premature deaths in a year worldwide [6].

A cross sectional study was conducted in USAon diet and blood pressure related knowledge, attitude and hypertension prevalence among 196 randomly selected samples. The study found that only 41% of hypertensive patients were having adequate knowledge regarding effective diet on reducing hypertension. The study made recommendations for further awareness programmes to the hypertensive patients regarding diet in hypertension[7] From these studies, the researcher(s) imbibed the importance of DASH in lowering blood pressure.Self-instruction of DASH will provide patient education and is cost effective; Hence the researcher felt the need to assess the knowledge regarding dietary approaches to stop hypertension among hypertensive patients and enhance their knowledge with the help of a Self-Instructional Module (SIM).

Objectivesofthestudy:-
1. To assess the level of knowledge regarding DASH among hypertensive patients before and after Self-instructional module.
2. To determine the effectiveness of self-instructional module on level of knowledge regarding DASH by comparison of mean Pre-test and Post-test knowledge scores.
3. To find out the association between the Pre-test level of knowledge and selected demographical variables.

Hypotheses
H_1-There is significant difference in the mean knowledge scores before and after intervention.
H_2-There is significant association between level of knowledge with selected demographic variables.

Methodology: -
Research Approach:
Quantitative research approach.

Research Design:
Pre-Experimental, One group Pre-test – Post-test design.

Settings:

Selected hospital, Sikar, Rajasthan.

Sample Size:
60 Hypertensive patients from selected hospital, Sikar.

Sampling Technique:
Non –probability, purposive sampling technique.

Figure01:- Schematic Representation of Research Design.

Pre-test	Treatment	Post-test
O_1	X	O_2

O_1: Assessment of pre–test level of knowledge regarding DASH using structured knowledge questionnaire.
X: Administration of Self-Instructional module (Intervention) on DASH, the same day following the pre-test.
O_2: Assessment of post-test level of knowledge regarding DASH by using structured knowledge questionnaire after a week following the Intervention.

Tools and technique
Tool-A:
Demographic Performa was used to assess the socio demographic characteristics such as Age, Gender, Religion, Dietary pattern, Education status, Occupational status, Previous knowledge regarding Diet and Clinical variables such as Duration of hypertension and Family history of hypertension.

Tool-B:
Structured Knowledge Questionnaire was used to assess the level of knowledge regarding DASH among Hypertensive patients of selected Hospitals, Sikar. The questionnaire had a total of 30 questions further divided in to two sub parts [1. Questions regarding hypertension and 2. Questions regarding DASH (2a. Questions about minerals with regard to DASH, 2b. Questions about fats and proteins with regard to DASH, 2c. Questions about fruits and vegetables with regard to DASH, 2d. Questions about dietary recommendations for cooking with regard to DASH, 2e. Questions about personal traits with regard to DASH).

Technique:
A Self-Instructional Module was administered for 60 samples (Hypertensive patientsof selected Hospital, Sikar). The module was based on the level of understanding of hypertensive patients with relevant illustration and pictures. The areas covered were the General information regarding hypertension, Importance of diet in hypertension, DASH and its components.

Method of Data collection:
Data was collected for a period of 30 days from 20th April 2013 to 20th May2013.After explaining the purpose and obtaining an informed consent, the structured knowledge questionnaire was administered to findout the pre-test level of knowledge among hypertensive patients regarding DASH. On the same day Self-instructional moduleon DASH was administered. A post-test was carried out on the 8th day following administration of the instructional module.

Inclusion criteria:
Hypertensive patients who were willing to participate in the study and availableatthetime of data collection.

Exclusion criteria:
Hypertensive patients who were critically ill and mentally ill.
Hypertensive patients who were diagnosed with renal, liver and neuro pathology.
Hypertensive patients who were previously sensitized to similar study within the past three months.

Statisticalanalysis:
Both Descriptive and Inferential statistics were used to analyze the data [using SPSS version 16 (SPSS Inc. Chicago, IL)]. Descriptive statistics such as Frequency distribution and percentage were used to describe the demographic variables and Inferential statistics such as 'paired t test'was used to find out the effectiveness of the self-instructional module by comparing the mean knowledge scores beforeand after the intervention. Chi square test statistics (χ^2) was

performed to find out the association betweenlevel of knowledge and selected demographic variables. The level (P < 0.05) was considered as the minimum accepted level of significance.

Results:-
Section-I: Frequencydistribution and Percentage of Sample characteristics

**Table 01: -** Frequency distribution and percentageofhypertensive patientsaccordingto age.   **(N=60)**

DEMOGRAPHIC VARIBLES		
Age (In years)	**f**	**%**
<45 yrs.	14	23.3%
46-55 yrs.	14	23.3%
56-65 yrs.	15	25%
>65 yrs.	17	28.4%
Gender	**f**	**%**
Male	32	53.3%
Female	28	46.7%
Religion	**f**	**%**
Hindu	29	48.3%
Muslim	**27**	45%
Christian	04	6.7%
Dietary pattern	**f**	**%**
Vegetarian	26	43.3%
Non vegetarian	34	56.7%
Education Status	**f**	**%**
Primary Education	31	51.7%
High school	27	45%
Higher Secondary and above	02	3.3%
Occupation Status	**f**	**%**
Employed/Self employed	41	68.3%
Unemployed	19	31.7%
Source of information	**f**	**%**
Family & Friends	15	25%
Mass media	10	16.7%
Others	35	58.3%
CLINICAL VARIABLES		
Duration of Illness (Hypertension)	**f**	**%**
Up to 01year	18	30%
1-3 yrs.	22	36.7%
4-6 yrs.	16	26.7%
Above 06 yrs.	04	6.67%
Family history of Hypertension	**f**	**%**
First degree relative	16	6.7%
Second degree relative	06	10%
Nil	38	63.3%

Section-II: Pre-test and post-test level of knowledge among hypertensive patients.

Table-02: -Frequency distribution and percentage of samples according to their Pre-test and Post-test level of knowledge regarding DASH   **(N=60)**

SL. No	Level of Knowledge	Pre-Test		Post-Test	
		f	%	f	%
01.	Inadequate	52	86.7%	0	0%
02.	Moderatelyadequate	08	13.33%	17	28.3%
03.	Adequate	0	0%	43	71.7%

Figure-02:- Bar Diagram representing the percentage distribution of samples according to their pre-test level of knowledge regarding DASH.
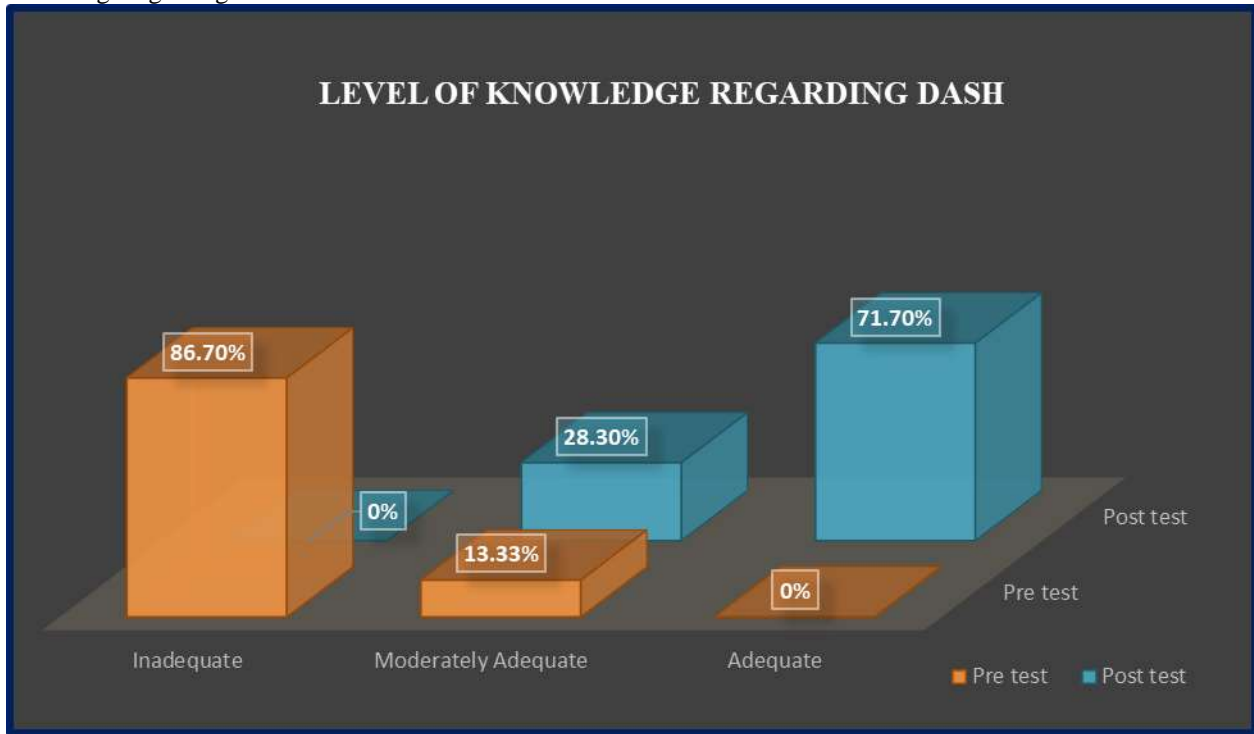
Section-III: Effectiveness of Self-instructional module on level of knowledge.

Table-03:- Mean, Standard deviation and Paired t value of level of knowledge among hypertensive patients before and after the intervention.   **(N=60)**

Stage	Mean±SD	MeanDifference	df	Pairedtvalue	P value
Pre-test	10.00 ± 2.30	13.00	59	**31.60****	P<0.01
Post-test	23.00 ± 2.70				

**Significantat0.01 level.

The above table shows that mean pre-test knowledge score was 10.00±2.3. After the Intervention (self-instructional module), the mean knowledge score increased to 23±2.70. Increase in knowledge score after the intervention was statistically significant (pairedtvalue31.60**, df 59, p<0.01). Hence, the research hypothesis(H1) was accepted.

Table-04:- Area Wise Mean, SD, Mean Difference and 'Paired t value' of level of knowledge among hypertensive patients before and after the intervention.   **(N=60)**

SL NO	Area	Stage	Mean ± SD	Mean Difference	df	Paired t value	P value
01	**Questions Regarding Hypertension**	Pre-test	3.1 ± 1.1	2.9	59	**12.1****	P<0.01
		Post-test	6.0 ± 1.0				
02	**Questions regarding Dietary approaches to stop hypertension**						

02a.	Minerals with regard to DASH	Pre-test	1.1 ± 0.6	01	59	5.0**	P<0.01
		Post-test	2.1 ± 0				
02b.	Fats and Proteins with regard to DASH	Pre-test	1.3 ± 1.0	2.4	59	11.3**	P<0.01
		Post-test	3.7 ± 0.9				
02c.	Fruits & vegetables with regard to DASH	Pre-test	0.8 ± 0.8	2.3	59	10.6**	P<0.01
		Post-test	3.1 ± 0.95				
02d.	Dietary recommendations	Pre-test	2.1 ± 1.1	2.77	59	10.5**	P<0.01
		Post-test	4.87 ± 1.1				
2e.	Personal Traits	Pre-test	1.7 ± 0.99	1.5	59	6.6**	P<0.01
		Post-test	3.2 ± 0.9				

**Significant at 0.01 level.

Section-IV: Association between level of knowledge and selected demographic variables.

Table 05:- Association between level of knowledge among hypertensive patients and selected demographic variables**.**   **(N=60)**

Demographic Variable	Knowledge level				df	χ^2	p
	Inadequate		Moderate				
Gender	f	%	f	%			
Yes	25	41.66%	07	11.67%	01	4.33*	0.04
No	27	45%	01	1.66%			

*Significant at0.05 level.

The above table depicts that the Chi square test value (4.33*, df=01) computed for Gender is significant at 0.05 level (p<0.05 level). So, there is association between Gender and pre-test level of knowledge regarding DASH among hypertensive patients. Hence, the research hypothesis H_2 was accepted. Also, there is no significant association between level of knowledge and other demographic variables. (p>0.05).

Discussion:-

The findings in the present study revealed that the mean pre-test knowledge score regarding DASH was 10.00 ±2.3 SD and mean post test score was 23±2.70 SD. The 'paired t value' [31.60**, df=59] computed by comparison of the mean pre-test and post-test knowledge scores was statistically significant at P<0.01 level. These findings are in terms with a similar cohort study conducted at New York among 5532 participants revealed that DASH like diet is effective in lowering Hypertension among adults. Therefore, it is interpreted that Self-instructional module is significant in improving the knowledge regarding DASH among hypertensive patients [8]

Conclusion:-

The study was conducted to assess the effectiveness of Self-instructional module on knowledge regarding DASH among Hypertensive patients in selected hospital. The results of the study confirmed that the mean post-test knowledge score is significantly higher than the mean pre-test knowledge score. Therefore, it is concluded that Self-instructional module is significantly effective in improving the knowledge regarding DASH among Hypertensive patients.

Limitations

The study used anon-probability, purposive sampling.
Lacked a control group to limit the influence of confounding variables.
No follow-up was made to measure the retention of knowledge.

Recommendations:-

1. A similar study can be conducted for a larger sample.
2. A similar quasi experimental study can be conducted with an experimental and control group.
3. A comparative study can be undertaken to compare the findings of the rural and urban community.

Ethical Considerations

Following ethical clearance from the institutional committee, the researcher(s) then obtained formal permissions from the concerned authorities to conduct the study. Also, a voluntary written informed consent was obtained from the study participants after explaining the objectives of the study. Confidentiality was ensured through out the course of the study.

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Budget

Conflicts Of Interest

None.

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