

Knowledge, Attitude And Practice Towards Dietary Salt Intake Among Hypertensive Patients In UHTC Of A Tertiary Care Hospital.

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Abstract-

Background- It was observed that a large number of hypertensive patients visiting UHTC O.P.D. were unaware of dietary restrictions and measure to be taken to prevent further complications, and were solely dependent on antihypertensive medications. High salt intake has been proven to be strongly related to health problems like hypertension and cardiovascular diseases.

Objective- To assess their knowledge, attitudes, and practices related to dietary salt intake for all known cases of hypertension visiting Urban Health Training Center O.P.D.

Methodology- A cross-sectional study was conducted among all known cases of previously diagnosed hypertensive patients who are on anti-hypertensive medications visiting urban health training centre O.P.D. Questionnaire consisted of different sections to assess their socio demographic status and their knowledge, attitude and practices with respect to dietary salt intake using Likert- like scale and also barriers faced against reduction in dietary salt intake. The total scores range were between 0 and 13 for knowledge part, -6 to +6 for attitude part, and 0 to 8 for practice part. The knowledge, attitude and practice scores were changed to percentage by dividing the total score of each part by the max score of same part, and then the KAP level means KAP percent.

Result- In total 111 patients participated in this study, with the mean age of the participants being 58.9 years and majority were females 85(76.58%). With regards to knowledge none of the participants had good knowledge about dietary salt intake, a total of 100 people had poor grade of knowledge and 11 had fair amount of knowledge. Prevalence of bad, average and good attitudes was 73(65.76%), 21(18.91%), and 17(15.31%) respectively. As for practice level, 81(72.79%) had poor dietary practices, 26(23.42%) with fair and only 4 (3.6%) had good practices.

Conclusion- Thus, we understand the gaps within healthcare system, how a majority of the society is unaware of dietary restrictions and how a high salt diet can risk serious health issues. The findings in our study can henceforth be taken as a reference point to help further improve quality of life in hypertensive patients and reduce disability associated life years. It requires a coordinated effort between health organizations, food safety authority, and government initiatives to necessitate public awareness towards reduction in dietary salt intake and balanced nutrition.

Keywords- Dietary salt, Hypertensive patients, Knowledge, Attitude and Practice.

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I. Introduction-

Cardiovascular diseases (CVDs) have become one of the leading causes of deaths worldwide especially among low-income countries like India where CVDs have reported to account approximately 52 percent of the total death annually as compared with the people of European ancestry¹.

It is now generally agreed that diet governs many situations favouring the onset of “heart disease”, particularly coronary heart disease².

Contribution of ultra-processed foods, especially consumption of high amount of fats, trans-fats, salt, and sugar to these ailments is now well recognized³.

In the Comprehensive national nutrition survey 2016 - 2018, 5% of adolescents were classified as being hypertensive. The prevalence of hypertension ranged from 0% to 10% across states. States with the highest ($\geq 8\%$) prevalence of hypertension among adolescents were Delhi, Uttar Pradesh and Manipur⁴.

There are good and consistent correlations between dietary sodium intake and the incidence of hypertension. Thus, the highest incidence of hypertension is found in north Japan where the sodium intake is

above 400mmol/day, while primitive societies ingesting less than 60mmol/day have virtually no hypertension. Susceptible individuals in primitive populations who change from low to high intake of sodium have been found to develop hypertension. Hypertension can be successfully treated with a drastically low sodium diet².

However, sodium is an essential nutrient, required for normal cardiovascular physiology and health, and therefore expected to have a physiologic 'healthy' range of intake, as is the case for other essential electrolytes. Sodium is most often (>90%) consumed in the form of sodium chloride (salt), and sodium homeostasis is tightly governed by numerous neurohormonal and central neurophysiologic mechanisms⁵.

II. Materials & Methods-

A cross-sectional study was conducted among the hypertensive patients visiting urban health training centre O.P.D. Shahaganj of Government Medical College, Chhatrapati Sambhajanagar, Maharashtra during the period of April – June 2024. All known cases of previously diagnosed hypertensive patients above the age of 18 years who are willing to give consent were included in the study. Patients below 18years of age, illiterate, newly diagnosed people and not willing to participate in the study were excluded from the study.

An appropriate pretested questionnaire was prepared and was further improvised to suit the Indian dietary practices and households. Questionnaire based face to face interview was conducted after taking verbal consent from participants fulfilling criteria. Questionnaire consisted of different sections to assess their socio demographic status and their knowledge, attitude and practices with respect to dietary salt intake, and also barriers faced against reduction in dietary salt intake.

Knowledge assessment done using multiple choice questions, with scores from 0-1 or 0-7 based on the number of correct choices, where questions included data regarding daily sodium recommendation, difference between sodium and salt, health problems associated with consuming too much salt and recommended amount of salt intake per day.

With respect to attitude and practices of dietary salt intake questions involved consumption of fruits and vegetables, frequency of eating outside food, practice of checking food labels for salt content and also barriers in practice against the control of salt/sodium in diet. Questions of the attitude part were given scoring of -1 to +1 Likert- like scale (agree, neutral, disagree). Each question in the practice part belongs one point for correct practice and 0 point in case of incorrect practice.

The total scores range were between 0 and 13 for knowledge part, -6 to +6 for attitude part, and 0 to 8 for practice part. The knowledge, attitude and practice scores were changed to percentage by dividing the total score of each part by the max score of same part, and then the KAP level means KAP percent.

Participants who have answered less than 50% of the questions accurately, were considered to have a limited level of knowledge, attitude or practice. While if they have scored between 50- 75% accurately, they were assigned a fair level of knowledge, attitude, or practice. More than 75% scoring will be deemed as a person with proper knowledge, appropriate attitude and good practice.

Also, the obstacles encountered during dietary salt intake reduction practices were also assessed for example such as the non-availability of low- sodium foods when dining outside, the lack of taste with low salt food, lack of awareness of high sodium foods, risks of consuming a high sodium diet, using a five-point Likert scale of agreement (strongly agree, agree, neutral, disagree, and strongly agree).

Each patient was given proper advice at the end of interview regarding control of hypertension including dietary practices of eating more vegetables and fruits in diet, to avoid high fat food, to check food labels of packaged food, reduce salt intake to < 5gm per day and also daily exercise of minimum 30minutes.

III. Results -

TABLE 1: Distribution of participants as per age and gender (n=111)

Mean Age	58.9 years
Gender	No (%)
Male	85(76.58%)
Female	26(23.42%)

In total 111 patients participated in this study, with the mean age of the participants being 58.9 years and the majority of the participants were females 85(76.58%).

Table 2: Distribution of participants as per level of education (n=111)

EDUCATION	No:	Percent (%)
Illiterate*	57	51.35
Primary level**	6	5.4
Secondary level ⁺	43	38.75
Higher Secondary level ⁺⁺	4	3.6
Bachelors	1	0.9
Total	111	100

*Illiterate- person unable to read/ write

**Primary level – grade I- IV

+Secondary level - grade V - grade 10th

++Higher secondary level - grade 11th and grade 12th

Majority of the participants were illiterate 57 (51.35%) followed by secondary level education 43 (38.75%) and only 5 (4.5%) of the total participants were having an education above higher secondary level.

Table 3: Distribution of Participants According to their Occupation(n=111)

OCCUPATION	No	Percent (%)
UNEMPLOYED	91	82
ELEMENTARY OCCUPATION	13	11.7
SALES WORKER	4	3.6
SKILLED WORKER	2	1.8
PROFESSIONAL	1	0.9
Total	111	100

In this study 91 participants (82%) were unemployed most of them being homemakers, followed by elementary occupation comprising of vendors and taxi drivers 13(11.7%).

TABLE 4: Distribution of participants as per years since diagnosed hypertensive (n=111)

HTN since	No	Percent (%)
< 1yr	11	9.91
1-5 yrs.	31	27.93
6-10 yrs.	33	29.73
11-15 yrs.	16	14.41
>15 yrs.	20	18.02
Total	111	100

In this study majority of participants were hypertensive since 6-10 years (29.73%) and 1-5 years (27.93%), whereas 18% were hypertensive since over 15 years.

TABLE 5: Distribution of study participants according to their responses to knowledge items about dietary salt intake (n=111).

VARIABLE	No	%
1.DO YOU BELIEVE THERE IS A DAILY SODIUM INTAKE RECOMMENDATION?		
I DON'T KNOW	40	36.04
NO	27	24.32
YES	44	39.64
2. DO YOU UNDERSTAND THE DIFFERENCE BETWEEN SODIUM AND SALT?		
I DON'T KNOW	43	38.74
NO	53	47.75
YES	15	13.51
3. DO YOU THINK CONSUMING TOO MUCH SALT COULD CAUSE SERIOUS HEALTH PROBLEMS?		
I DON'T KNOW	19	17.12
NO	19	17.12
YES	73	65.76
4. IF YOU ANSWER YES: WHAT TYPE OF HEALTH PROBLEMS?		
High blood pressure	81	72.97
Osteoporosis	4	3.6
Cardiac problems	15	13.51
Obesity	16	14.41
Gastric cancer	1	0.9
Kidney diseases	27	24.32
Stroke	12	10.81
All of the above	4	3.6
5. DO YOU THINK ITS NECESSARY TO REDUCE SALT INTAKE?		
I DON'T KNOW	17	15.31
NO	17	15.31
YES	77	69.38
6. HEALTH PROFESSIONALS RECOMMEND CUTTING BACK ON SALT INTAKE. WHAT DO YOU BELIEVE IS THE RECOMMENDED AMOUNT?		
10 gm	25	22.52
15 gm	9	8.11
3 gm	11	9.91

5 gm	17	15.32
8 gm	14	12.61
I DON'T KNOW	35	31.53
7. WHAT DO YOU BELIEVE TO BE THE PRIMARY SOURCE OF SALT IN THE INDIAN DIET?		
ADDING SALT WHEN COOKING AND/OR SERVING	88	79.28
NATURAL FOOD SOURCE	3	2.7
PROCESSED FOOD	19	17.12
I DON'T KNOW	1	0.9

TABLE 6: Distribution of study participants according to their responses to attitude items towards dietary salt intake (n=111).

Variable	Very important no. (%)	Slightly important no. (%)	Not important no. (%)
1. How important is it to you to reduce your salt	57 (51.4)	45(40.5)	9(8.1)
	Agree	Neutral	Disagree
2. Laws should be passed to restrict the quantity of salt that is added to processed foods	72(64.9)	27(24.3)	12(10.8)
3. I find that lower salt options are hard to find at restaurants or cafes	69(62.2)	33(29.7)	9(8.1)
4. Information about sodium that is displayed on food labels is not always clear	60(54.1)	38(34.2)	13(11.7)
5. If I cut back on the salt in my diet, my health would improve	59(53.2)	40(36)	12(10.8)
6. I think adding salt to food is necessary to give it flavour	71(64)	23(20.7)	17(15.3)

Table 7: Distribution of study participants according to their responses to practice items related to dietary salt intake (n=111).

1. DO YOU CONSUME A DAILY SERVING OF VEGETABLES AND FRUIT?		
I DON'T KNOW	25	22.52
NO	30	27.03
YES	56	50.45
2. DO YOU TRY TO RESTRICT EATING OUTSIDE?		
NEVER	23	20.72
OFTEN	56	50.45
RARELY	19	17.12
SOMETIMES	13	11.71
3. DO YOU TRY TO LOWER THE AMOUNT OF SALT IN YOUR FOOD?		
NEVER	8	7.2
OFTEN	65	58.56
RARELY	20	18.02
SOMETIMES	18	16.22
4. DO YOU CHECK FOOD LABELS FOR SALT CONTENT?		
NEVER	42	37.84
OFTEN	26	23.42
RARELY	29	26.13
SOMETIMES	14	12.61
5. DO YOU AVOID ADDING SALT DURING COOKING?		
NEVER	31	27.93
OFTEN	44	39.64
RARELY	22	19.82
SOMETIMES	14	12.61
6. DO YOU ADD SALT AT THE TABLE?		
NEVER	32	28.83
OFTEN	38	34.23
RARELY	21	18.92
SOMETIMES	20	18.02
7. HOW MUCH SALT DO YOU CONSUME PER DAY COMPARED TO THE RECOMMENDED AMOUNT?		
I CONSUME LESS THAN THE ADVISED AMOUNT	40	36.04
I CONSUME MORE THAN THE ADVISED AMOUNT	17	15.32
I CONSUME THE SAME AMOUNT AS ADVISED	27	24.32
I DON'T KNOW	27	24.32
8. HOW OFTEN DO YOU BUY A PACKET OF 1KG SALT AT HOME?		
WEEKLY	8	7.21
BIWEEKLY	26	23.42
MONTHLY	71	63.97
2 MONTHLY	5	4.5
3 MONTHLY	1	0.9

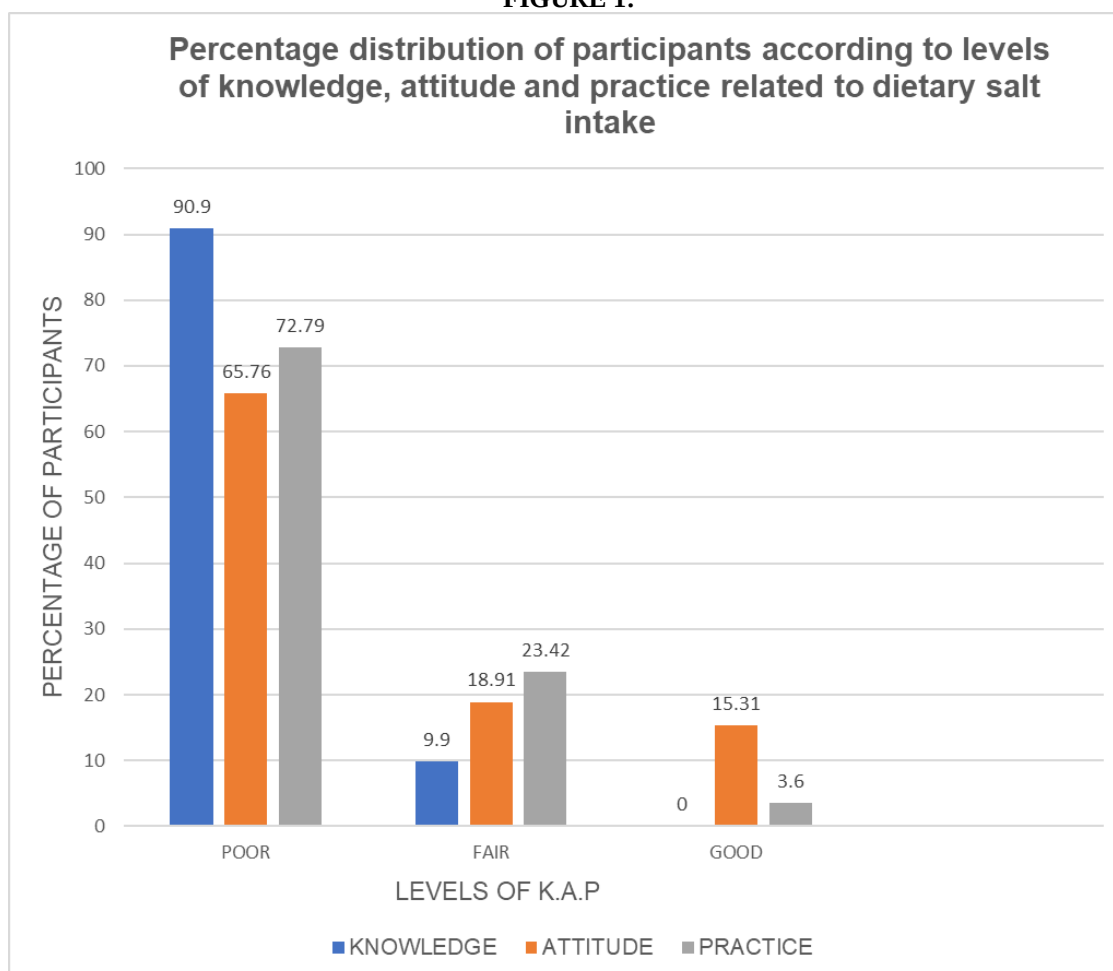
TABLE 8: Barriers to reduce salt or sodium in participants' diet.

Variable	Strongly agree no. (%)	Agree no. (%)	Neutral no. (%)	Disagree no. (%)	Strongly disagree no. (%)
Not enough time to check salt levels in food labels	23 (20.7)	28 (25.2)	37 (33.33)	16 (14.4)	7 (6.3)
Inaccessibility of low-sodium foods when dining outside	38 (34.2)	44 (39.6)	23 (20.7)	4 (3.6)	2 (1.8)
Taste of the low-salt food	54 (48.7)	34 (30.6)	15 (13.5)	3 (2.7)	5 (4.5)
Insufficient awareness of which foods to avoid	51 (46)	37 (33.33)	17 (15.3)	4 (3.6)	2 (1.8)
Lack of information regarding the risks of consuming a high-sodium diet	53 (47.7)	31 (28)	16 (14.4)	7 (6.3)	4 (3.6)

TABLE 9: Percentage distribution of the participants according to their knowledge, attitude and practice levels related to dietary salt intake (n=111)

	KNOWLEDGE	(%)	ATTITUDE	(%)	PRACTICE	(%)
POOR	100	90.9%	73	65.76%	81	72.97%
FAIR	11	9.9%	21	18.91%	26	23.42%
GOOD	0	0	17	15.31%	4	3.60%

FIGURE 1:



With regards to knowledge none of the participants had good knowledge about dietary salt intake, 100 participants (90.9%) had poor grade of knowledge and 11 (9.1%) had fair amount of knowledge.

Prevalence of bad, average and good attitudes was 73(65.76%), 21(18.91%), 17 (15.31%) respectively while for practice level, 81(72.79%) had poor dietary practices, 26(23.42%) fair and only 4(3.6%) had good practices.

IV. Discussion-

The objectives of this study were to explore the knowledge, attitude, and practices regarding dietary salt intake among known cases of hypertension visiting UHTC O.P.D, and to identify barriers seen against optimum dietary sodium intake. As per the findings of our survey, participants had a poor level of knowledge and apprehension regarding dietary salt intake.

A similar kind of study⁶ based upon medical students at king abdulaziz university Saudi Arabia, found that participants had a moderate level of knowledge and understanding about dietary salt intake in contrast to our study which is reasonable being study conducted in a medical school where students are exposed to health education and awareness.

In a study by Anthony Worsley⁷ a brief survey of the recent literature shows that 'nutrition knowledge' is a necessary but not sufficient factor for changes in consumers' food behaviours, the evidence for the influence of nutrition knowledge on food behaviours is mixed.

In a similar study by Kamal Ghimare et al⁸ in Nepal showed that with 81.6% of the population reporting higher salt intake than the WHO recommendation of <5 g/day.

Another study by Vandana Garg et al to compare knowledge, attitudes and practices among adults in rural and urban north India⁹, having similar findings found that knowledge, attitudes and practices towards daily salt intake were worse in rural areas than in urban areas.

43% of the participants did not know the harmful effects of taking excess salt in diet, and a 3/4th of the population did not think that lowering salt intake in diet is important at all in a study by Bhattacharya, et al.: Dietary salt intake among urban population¹⁰

Excess dietary salt intake is the leading cause of hypertension in India. Though this is a well-known fact, addressing this problem has many more obstacles. Prescribing anti-hypertensive medications and advising them to reduce salt in diet cannot bring about a change in dietary practices being followed by them since ages. Raise awareness of processed foods containing excess salt as preservatives, promote practice of reading food labels, highlight the role of family members in addition of salt while preparation of food.

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