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Salt Reduction Behavior and Related Factors in Hypertensive Older Patients

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ABSTRACT

Objectives: To describe the salt reduction behavior of hypertensive older patients in dietary and examine it related factors.
Methods: A cross-sectional study was conducted among 164 elderly patients with hypertensive. Salt reduction behaviour were measured by using a Dietary Sodium Reduction Self-care Behaviour Scale (DSR-SCB Scale). Salt reduction knowledge was measured by using the Knowledge of Dietary Sodium Reduction Scale (KDSR Scale). Student T-Test, ANOVA, and Pearson's product-moment correlations were used to analyze the data.
Results: In total, 164 elderly patients with hypertensive were included. The mean age was 74.68 ± 8.22 years and female were accounted for 55%. The overall score of salt reduction knowledge and salt reduction behavior in the diet were 37.40 ± 4.20 and 27.32 ± 4.92, respectively. In which, the opinion "I prefer to eat home cooked food over food sold from street vendors" had the highest mean score (3.52 ± 0.58). The opinion "Every time I find my food salty, I am willing not to eat it" had the lowest mean score (2.65 ± 0.86). There was a statistically significant difference in salt reduction behavior between gender ($p<0.01$) and cooking skills ($p<0.01$). Salt reduction knowledge had significant correlation with salt reduction behavior ($r=0.508$, $p<0.01$).
Conclusions: Salt reduction behavior basically related to gender and cooking skills. Due to lack of knowledge, patients had a low score in salt reduction behavior. Therefore, health-care providers can focus their educational activities on these individuals to enhance their behaviors.

Keywords: Salt reduction, Behavior, Hypertension, Older patients

INTRODUCTION

Hypertensive is the most common cardiovascular disease and the leading cause of dead worldwide (1). According to World Health Organization, the number of hypertensive patients were 1.28 billion globally, in which about two-third of hypertensive people live in low- and middle-income countries (2). A national epidemiological survey (2001-2008) including 9832 individuals aged ≥25 years reported that 25.1% of the Vietnamese population had hypertension, almost half of whom were aware of their disease; the treatment rate in patients with hypertension was 62%, of whom 38.3% had controlled hypertension (3).

Limiting salt consumption is an effective measures for the management and prevention of hypertension (4), (5). Research on hypertensive patients showed that reducing 1g of salt in the daily meal, systolic blood pressure decreased by 1mmHg (6). WHO recommends that adults should consume less than 5g of salt per day. For hypertensive older people, salt intake should be about 1.5g/day (7).

Although salt reduction is considered as a positive lifestyle for preventing hypertension, the knowledge and behavior

related to salt consumption remains low (8). The World Health Organization target of 5g salt per day has not been achieved in over the world (9). In Vietnam, Recent research has estimated the average salt intake in Vietnam to be 9.4 g/day (10), nearly double the WHO recommendation of 5g salt/day (11, 12). About 80% of people prepare extra cups of condiments such as fish sauce or salt for meals (13). This is a matter of concern for people with hypertension in Vietnam.

An alarming fact is that Vietnamese people eat too much salt compared to recommended standards. A national survey indicates that the average salt consumption of Vietnamese people is 9.4g/day (14), almost double the level recommended by the World Health Organization. Most Vietnamese people have knowledge about salt restriction in hypertension, however they are not aware that the amount of salt they are consuming daily is much higher than recommended (14). Currently, models of behavior change are becoming a major concern in the care of chronic diseases. Care of the chronic patients focuses on motivating patients to perform self-care activities to maintain health (15). A patient's knowledge, attitude, motivation, and ability to take care of themselves have a major impact on their self-care behaviour (16). Nurses have an important role in promoting health through patient education by emphasizing self-care behaviors for hypertensive patients and design various intervention programs on self-care behaviors toward higher quality of life for patients.

In Vietnam, although several studies conducted in salt and salt consumption in general population, little is known about salt reduction behavior among hypertensive older patients. Therefore, the aim of the study was to describe the salt reduction behaviour in hypertensive older patients and examine the factors related to salt reduction behaviour in hypertensive older patients. The research results will serve as a basis for health education and change in salt consumption behavior of elderly people with hypertension.

MATERIALS & METHODS

Participants

This study was a cross-sectional study conducted at C hospital, Vietnam. A convenient sampling technique was used. In this study, 164 elderly patients with hypertension were enrolled from a ward at C hospital. The sample size was determined according to effect size of 0.3, statistic power of 0.95, and the significance level of 0.05 (17). In addition, the sample size was added by 10% to prevent inappropriate questionnaires. Thus, the minimum sample size of the study was 152. During data collection, 170 questionnaires were issued, of which 6 were invalid due to lack of information. Therefore, the final sample size of the study was 164.

The inclusion criteria consisted of being 60 years of age and above, history of hypertension diagnosis for at least 6 months, and taking antihypertensive medication. Exclusion criteria included communicating, hearing, and cognitive disorders, and having acute symptoms. Cognitive disorders were screened by 6-Item Cognitive Impairment Test with overall score of 8 to 28 indicates that the patient has a cognitive disorder.

Procedures

Patients who met the criteria were listed and conveniently approached. Purposes, process of study, the speculated benefits, potential risks, and the right to refuse or withdraw from participation were also explained to potential participants. Then, all participants provided written informed consent. During the data collection process, the participants could withdraw from the study without any consequence. All questionnaires were checked to ensure the data completeness. Data were collected from January to March, 2021.

Research instruments

Data was collected by demographic questionnaire, The Knowledge of Dietary Sodium Reduction Scale (KDSR Scale), and the Dietary Sodium Reduction Self-care

Behaviour Scale (DSR-SCB Scale), as follows:

The demographic questionnaire

The demographic questionnaire was developed by researchers. It included questions about gender, age, marital status, education, cooking skills, food suppliers, and hypertension duration (years).

The Knowledge of Dietary Sodium Reduction Scale

The Knowledge of Dietary Sodium Reduction Scale (KDSR Scale) was used to measure the salt reduction knowledge of participants. The scale included 12 questions developed by Srikan and Phillips (18). The KDSR Scale was rated using a four-point Likert scale ranged from 1 (strongly disagree) to 4 (strongly agree). The KDSR Scale score was calculated by summing up all item scores, range from 12 to 48. Higher KDSR Scale score indicates better knowledge of sodium reduction in dietary.

Dietary Sodium Reduction Self-care Behaviour Scale

The Dietary Sodium Reduction Self-care Behaviour Scale (DSR-SCB Scale) was used to measure the salt reduction behavior in dietary. The scale included 9 questions developed by Srikan and Phillips (19). The DSR-SCB Scale was rated using a five-point Likert scale ranged from 1 (never) to 5 (always). The DSR-SCB Scale score was calculated by summing up all item scores, range from 5 to 45. Higher DSR-SCB Scale score indicates better self-care behaviour of sodium reduction in dietary.

These scales were permitted to use in this study and translated into Vietnamese language using a standard forward-backward translation. In this study, the Cronbach's alpha of Vietnamese version of KDSR Scale and DSR-SCB Scale were 0.81 and 0.89, respectively.

Statistical Analysis

Data analysis was performed using SPSS software version 20. Data were checked and no missing data were found. All the assumptions for statistics were checked. Descriptive statistics were used to describe the demographic statistics, salt reduction knowledge, and salt reduction behavior. Independent Samples T-test was used to compare the self-care behavior between groups of gender and marital status. One-way ANOVA was used to compare the self-care behavior between groups of education, cooking skills, and food suppliers. Pearson product-moment correlation was used to examine the relationship between age, salt reduction knowledge and salt reduction behavior of participants. Spearman's rank-order correlation was used to examine the relationship between hypertension duration and salt reduction behavior. The significance level of statistical testing was set at p-value being less than 0.050.

Ethical considerations

Participation in this study was voluntary. Patients could refuse or withdraw from the study without any negative consequences to their treatments. The privacy of participants was kept a secret when the study was published. The Institutional Review Board (IRB), Danang University of Medical Technology and Pharmacy approved the study with No 01/QD-HDDD. The administration of the hospital permitted to collect of data.

RESULT

The mean age was 74.68 ± 8.22 years. Over half of them were female (55.50%). Most of them were married (89.00%) and good cooking skills (74.40%). The proportion of those who get a college and higher education was 70.80%. The mean score of sodium reduction knowledge was 37.40 ± 4.20. The demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic characteristics and sodium reduction knowledge of the participants (n=164)

Characteristics		N	%
Gender			
	Male	73	44.50
	Female	91	55.50
Age (years) Min-Max= 60-94; Mean = 74.68; SD = 8.22			
Marital status			
	Married	146	89.0
	Single/Divorced/Widowed	18	11.0
Education			
	Primary school	10	6.10
	Secondary school	25	15.20
	High school	61	37.20
	Undergraduate school and higher	68	41.50
Cooking skills			
	Very good	13	7.90
	Good	122	74.40
	Poor	29	17.70
Food suppliers			
	Myself	64	39.90
	Spouse	45	27.40
	Children	47	28.70
	Others	8	4.90
Hypertension duration	Min-Max= 1-50; Mean = 9.76; SD = 7.96		
Sodium reduction knowledge (KDSR Scale)	Min-Max=26-48; Mean = 37.40; SD = 4.20		

As shown in Table 2, the mean self-care behavior score was 27.32 ± 4.92. The highest score was related to the item "I prefer eating food cooked at home over buying ready-to-eat food from food vendors" (3.52 ± 0.58). The lowest score was related to the item "Whenever I feel my food is salty, I am willing to avoid eating it" (2.65 ± 0.86).

Table 2. Descriptive statistics of the self-care behavior of sodium reduction in dietary (n=164)

Items	Min - Max	Mean ± SD
1. I feel satisfied to reduce the amount of salt in my diet	1 - 4	3.05 ± 0.71
2. I can cook a low salt diet	1 - 4	2.77 ± 0.87
3. Whenever I feel my food is salty, I am willing to avoid eating it	1 - 4	2.65 ± 0.86
4. I prefer eating food cooked at home over buying ready-to-eat food from food venders	2 - 4	3.52 ± 0.58
5. I taste my food before eating	2 - 4	3.24 ± 0.67
6. I avoid adding some more salty seasonings in my food.	1 - 4	3.12 ± 0.77
7. Whenever I see other people eat salty food, I still can control myself not to eat like them	1 - 4	3.02 ± 0.74
8. I can control myself to eat a low salt diet in any situation	1 - 4	2.80 ± 0.79
9. I eat a low salt diet every day	1 - 4	3.15 ± 0.83
The DSR-SCB Scale	**14 - 36**	**27.32 ± 4.92**

SD: Standard deviation; Min – Max: Minimum and Maximum variation

There was a difference in salt reduction behavior among patients of different gender and cooking skills. In which, the female had a higher mean score on salt reduction behavior than the male (p = 0.001). Patients with very good cooking skills had higher salt reduction behavior (p =0.003) compared with other groups. In contrast, there was no difference in salt self-restriction behavior in terms of education (p=0.967), marital status (p=0.305), and food suppliers (p=0.322).

In the current study, sodium reduction knowledge had a positive correlation with salt reduction behavior (r=0.508; p=0.000) (Table 4). Age and hypertension duration was not associated with salt-reducing behavior at p=0.495 and p=0.251, respectively.

Table 3. Association between demographic characteristics and sodium reduction behavior

Variables		Salt reduction behaviour			
		Mean ± SD	**t/F**	**r**	**p**
Gender	Male Female	25.93 ± 5.06 28.43 ± 4.54	-3.326		0.001
Education	Primary school Secondary school High school Undergraduate school and higher	26.70 ± 6.53 27.16 ± 5.47 27.30 ± 4.50 27.49 ± 4.48	0.086		0.967

Table 3 To Be Continued…					
Marital status	Married Single/Divorced/Widowed	27.18 ± 4.97 28.44 ± 4.53	1.030		0.305
Cooking skills	Very good Good Poor	30.23 ± 4.64 27.57 ± 4.73 24.97 ± 5.05	6.098		0.003
Food suppliers	Myself Spouse Children Others	27.95 ± 4.96 26.29 ± 4.93 28.50 ± 3.38	1.172		0.322
Age				-0.05	0.495
Hypertension duration				-0.09*	0.251

*** Spearman's rank correlation coefficient**

Table 4. Association between sodium reduction knowledge and sodium reduction behaviour

Variable	Salt reduction behaviour	
	Pearson's correlation coefficient (r)	p
Salt reduction knowledge	0,508	0,000

DISCUSSION

The purpose of the study was to describe the salt reduction behavior and assess the factors related to salt reduction behavior in hypertensive older patients. The findings of the study showed that hypertensive older patients had low salt reduction behavior. In addition, gender, cooking skills, and salt reduction knowledge had associated with salt reduction behavior.

Salt reduction behavior of hypertensive older patients in this study was lower than those in previous studies (20, 21). Some patients in this study reported that they rarely can cook a low salt diet or control themself to eat a low salt diet in any situation. Moreover, some patients mentioned that they still eat their foods even if it is salty. Loss of taste and smell in the elderly may lead to a preference for salty food. The physical change in vision, hearing, and cognition could be related to low salt reduction behavior in the elderly.

On the other hand, most patients reported that they often taste the food before eating and avoid adding salty seasonings to food. These are the positive behaviors in salt reduction. Vietnamese culture has features such as the variety of dishes and the combination of many spices to create a rich flavor for the dishes. Therefore, the behaviors of tasting food as well as avoiding adding salty seasonings to food will help patients control the amount of salt in the meal better.

Our study showed that there was a statistically significant difference in salt reduction behavior between men and women. In which, women have higher salt reduction behavior than men. This result is consistent with previous studies (22). Another study in two Kazakhstani territories showed lower urinary sodium levels in women than in men. This difference may be due to Eastern culture, where women are the main caregivers and food preparation for the family. Therefore, they tend to pay more attention to nutrition in the diet than men.

In this study, we found the difference in salt reduction behavior between patients with different cooking skills. The results of our study are consistent with previous studies. Poor cooking ability is one of the barriers to reducing salt in the diet (22). Another study of 2,444 Chinese people showed that cooking skills had an impact on their salt reduction behavior (23). In addition, the study by Abbott et al. mentioned that improving the cooking skills of diabetic patients through a cooking course, changed their eating behavior (24). This could be explained by the fact that patients with good cooking skills often have an understanding of foods and spices. Therefore, they can better control the seasoning in the meal.

In addition, a positive correlation was found between salt reduction knowledge and salt reduction behavior of hypertensive older patients. Previous studies on the elderly with hypertension also showed similar results (21, 25). A lack of knowledge about salt in the diet is a factor in non-compliance with a salt-reduced diet (26). Other studies have also shown that salt reduction knowledge is

positively correlated with salt consumption behavior (27). This shows that in patients with good knowledge of salt reduction in the diet, the behavior of salt reduction will be better.

This study faced some limitations. The study was conducted with cross-sectional design that did not reveal the cause and effect for the variables. Furthermore, only one hospital was participated in this study, potentially making our study's findings less applicable to the general population. Future studies should conduct with larger samples and more robust design to determine the relationships between variables.

CONCLUSION

This study described the salt reduction behavior of hypertensive older patients and related factors. The results of this study revealed that hypertensive older patients had low salt reduction behavior. Gender, cooking skills, and salt reduction knowledge had associated with salt reduction behavior. Therefore, health-care providers should focus their educational activities on these aspects to enhance their behaviors.

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