Original Article

Perceived Benefits and Barriers of Hypertensive Individuals in Salt-Restricted Diet

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Abstract

The aim of this study was conducted to examine the perceived benefits and barriers for hypertensive individuals regarding salt restriction. A cross-sectional descriptive study was conducted with 200 hypertensive individuals followed at a hypertension polyclinic. The data were collected using a questionnaire form including sociodemographic and disease features, attitudes and behavior about salt consumption in diet and Beliefs about Dietary Adherence Scale. The data were analyzed using Mann-Whitney U test, Kruskal-Wallis test, and Spearman correlation analysis. In the perceived benefits, the highest mean score was found in the item "eating a low-salt diet will keep my heart healthy"; whereas, in the perceived barriers, the highest mean score was found in the item "food does not taste good on the low-salt diet,". Perceived benefits and barriers of the participants differed in terms of their attitudes and behaviors. To change the negative attitudes and behaviors, the individuals should be trained about the application of salt-restricted diet.

Key words: Health belief, Hypertensive patients, Nursing, Salt-restricted diet, Perceived barrier, Perceived benefit.

Introduction

Hypertension (HT), also known as high blood pressure, is one of the most important risk factors in cardiovascular diseases and deaths in the world. It is estimated that HT accounts for approximately 9.4 million deaths. Being around 22% in 2014 (WHO, 2014), its global prevalence ranges between 30% and 32.7% in Turkey (Sengul et al., 2013; Satman et al., 2013).

Many factors contribute to the increase of HT's prevalence. As one of these factors, the high salt (sodium) diet was listed among the top 10 risk factors according to the 2015 Disability-adjusted Life Years (DALYs) report (GBD 2015 Risk Factors Collaborators, 2016). It is important for efforts aimed at lowering sodium intake to particularly focus on populations at risk for hypertension due to their high sodium diets (Mente et al., 2016). In a meta-analysis examining the long-term effects of salt restriction on hypertensive and normotensive individuals, systolic and diastolic blood pressures were shown to decrease in parallel with increased salt restriction. It is recommended for salt consumption to be restricted to 3g/day in order to ensure a decline in blood pressure (He et al., 2013).

Although the positive effects of salt restriction are globally accepted, people find it difficult to reduce the amount of dietary salt due to personal and environmental factors (Ohta et al., 2015; Ohta et al., 2017; de Brito-Ashurst et al., 2013a). The personal factors include daily familial routines (or

living with the family), physical characteristics (excessive BMI) (Ohta et al., 2017), salt-free foods considered as tasteless, boredom of implementing a diet, presence of a salt shaker on the dinner table, inadequate knowledge about this matter, and cultural dietary habits (Bellamy, 2004; Kim et al., 2005 ; Bentley et al., 2005; Sheahan and Fields, 2008; Kollipara et al., 2008; Park et al., 2008; Walsh and Lehane, 2011; McMahon et al., 2012; Epstein et al., 2012; de Brito-Ashurst et al., 2013b; Krespi Boothby and Salmon, 2013; Welch et al., 2013; Ohta et al., 2015; Young and Barnason, 2016; Karanja et al., 2007; De Keyzer W, 2015). The environmental factors, on the other hand, include the use of salt to make industrial and domestic foods tastier and to prevent the reproduction of bacteria that may cause foods to go off (The Ministry of Health of Turkey, 2016; The Ministry of Health of Turkey, 2011). Both personal and environmental factors have significant roles as daily salt intake sources. Thus, it is recommended that regardless of having hypertension, all people should get into the habit of reading the labels on foods, prefer foods that contain 5% or lower of daily salt need, stay away from canned foods and fast-foods, use salt-free sauces for preparing a meal, order food that has less salt, avoid adding salt into meals, and consume salt-free bread in order to reduce the amount of dietary salt consumption (The Ministry of Health of Turkey, 2011). When considering the numerous personal and environmental factors, salt restriction requires people suffering from hypertension to make significant behavioral changes in their lives.

Patient education is a process enabling individuals to make conscious decisions about their health-related personal behaviors and aims at adherence to treatment regimens and health promotion by encouraging to develop healthy lifestyle behaviors. Behavioral change for patients is a complicated process and requires more than simply acquiring information. Therefore, various educational models based on behavioral theories have been developed to explain health-related behaviors (Bellamy, 2004). The most frequently used model is the Health Belief Model (Gozum and Capik, 2014). This model, which describes the reasons of the attitudes and behaviors of individuals, is an effective guide in explaining and measuring the factors that enhance or hinder patients' adherence to treatment (Gozum and Capik, 2014; Carpenter, 2010; Shojaei et al., 2016; Cenesiz and Atak, 2007). This model is reported to be effective in improving the compliance to treatment for chronic diseases (Walsh and Lehane, 2011; Carpenter, 2010; Wang et al., 2014). The concepts of this model are used to develop and maintain healthy lifestyles (Yue et al., 2015; Wang et al., 2014). In the Health Belief model, incorporating five concepts, the concept of perceived benefit signifies the individual's beliefs in the benefits of the recommended protective behaviors, and the concept of perceived barrier signifies an individual's perception towards the factors that are effective in failure to perform a certain action (Gozum and Capik, 2014; Ho et al., 2009; Cenesiz and Atak, 2007). Perceived benefits and barriers are strong determinants of healthy lifestyle behaviors (Carpenter, 2010).

Knowledge, attitude, and behavioral changes are important for hypertensive patients in terms of achieving a lifestyle change in conformance with adherence to a salt-restricted (SR) diet. Nurses can use the perceived benefits and perceived barriers terms of the Health Belief Model within the care programs in order to facilitate and support the changes that need to be made in the lifestyle of hypertensive patients (Sol et al., 2005; Jafari et al., 2016). However, in order to develop these programs, nurses should firstly determine the perceived benefits and barriers of hypertensive patients who are on a SR diet.

Although the perceived benefits and barriers in a reduced salt or SR diet have been examined for patients undergoing hemodialysis (Woan Ching and Than Soo Nyet, 2015; Walsh and Lehane, 2011) and those with cardiac failure (Bennett et al., 1997; Bentley et al., 2005), for whom the daily amount of salt consumption is important, the same benefits and barriers have not been examined for hypertensive individuals.

How the benefits of consuming a diet limited to a small amount of salt are perceived and the awareness about the factors that are perceived as barriers to maintain this lifestyle can guide nurses in educational programs for behavioral changes (Berra, 2011; Bellamy, 2004; Kastarinen et al., 2002; Wang et al., 2014; Yue et al., 2015; Carpenter, 2010).

Method

Study Aim and Design

The aim of this cross-sectional, descriptive study was to investigate the perceived benefits and barriers for adherence to salt restriction in hypertensive individuals. The questions in the study were as follows:

- What are the perceived benefits and barriers to an SR diet for patients with HT?
- Are there any difference in perceived benefits and barriers according to socio-demographic characteristics for patients with HT?
- Are there any difference in perceived benefits and barriers according to attitues and behaviors for patients with HT?

Sample

The number of cases to be included was determined as 201 at the confidence interval of 95% and the effect size of .6, with sampling error of ± 5%. This study was completed with 200 cases after those filling the questionnaires with missing data were excluded. This study was conducted in a hypertension polyclinic of a university hospital. Individuals diagnosed with HT are referred to this polyclinic and regularly followed-up. Patients are admitted to the outpatient 2 days a week. 200 individuals were included in the sample via random sampling method (convenience) among the individuals who applied to the outpatient in these days. The inclusion criteria for the sample are as follows; being diagnosed with HT, being able to speak and understand Turkish, being 18 years old or over, and choosing to voluntarily participate in the study. The data were collected by the researchers in a comfortable setting using the face-to-face interview technique. It took approximately 15 minutes to complete the data collection process for each person

Data Collection and Instruments

An information form developed by the researchers and the Beliefs about Dietary Compliance Scale (BDCS) were used to collect the data (Bennett et al., 1997). The information form included sociodemographic and disease-related features, attitudes and behavior about salt consumption in diet and the frequency of consuming salt-rich foods.

Sociodemographic and disease-related questions involved age, education, gender, marital status, employment status, level of income, presence of additional disease(s), whether or not information was given about the disease, duration of HT, and number of medications

The daily salt consumption is 15 grams in Turkey and 55.5% of the consumed salt is the salt added to the meals, 31.9% is the bread salt and 12.6% is the table salt (Erdem, 2016 ; The Ministry of Health of Turkey, 2016). Based on this information and literature (Karanja et al., 2007) attitudes and behaviors related to salt consumption in diet were evaluated as follows

- paying attention to salt restriction,
- using the salt shaker on the dinner table,
- paying attention to eat salt-free foods in social environment (friends, relatives, family visits, meetings, etc.),
- examining the labels of the foods in order to check the salt amount inside the ready-to-eat foods while buying them,
- salt level of the foods (salty, low salty and salt-free)
- consuming salty or salt-free bread

Beliefs about Dietary Compliance Scale (BDCS): The BDCS was developed by Bennett et al.,(1997) in order to evaluate the perceived benefits and barriers regarding adherence to SR diet in patients with heart failure. BDCS is a five-point Likert-type scale, with the responses ranging from 1= strongly disagree to 5= strongly agree, and has 12 items and 2 subscales (“benefits” and “barriers”).

The ‘benefits’ subscale evaluates the benefits regarding adherence to SR diet and includes 7 items, scored between 7 and 35. The ‘barriers’ subscale evaluates the barriers regarding adherence to SR diet and includes 5 items, scored between 5 and 25. Higher scores indicate higher levels of perceived benefits and barriers. The median values for the perceived benefits and barriers are 21 and 15, respectively.

The total score of BDCS is not calculated and each subscale is evaluated separately. Bennett et al., (1997) found that the Cronbach's alpha coefficient was between *.83* and .88 for the subscale of Benefits and between *.66 – .77* for the subscale of Barriers. BDCS was adapted into Turkish by Oguz, Enç and Yigit (2010). The authors reported that the Cronbach's alpha coefficient was .71 for the subscale of Benefits and *.58* for the subscale of Barriers (Oguz, Enç and Yigit 2010). The reliability of the BDCS was evaluated by calculating the Cronbach's alpha coefficient in the present study. The Cronbach's alpha coefficient was found to be *.85* for the subscale of Benefits and *.64* for the subscale of Barriers. The scale was therefore determined to be reliable.

Data Analysis

The data were assessed using the IBM SPSS Statistics version 21. In the "Shapiro-Wilk" test used to examine whether or not the data were normally distributed, it was observed that they were non-normally distributed ($p<0.05$). The Mann-Whitney U test was used to compare two groups; whereas, the Kruskal-Wallis test was performed to compare three and more groups and Spearman's correlation analysis to examine the correlations. The value of $p<.05$ was accepted as significance level.

Ethical Issues

The informed consent of all participants and the approval of the ethics committee of University were obtained. Before conducting the study, the patients were informed about the purpose of the study and that their answers and data would remain anonymous and they could withdraw from the study at any time. Informed consent was obtained from all participants. In compliance with the Helsinki declaration, the study was conducted with patients who agreed to participate.

Results

Table 1 shows the socio-demographic and disease-related characteristics of the participants. It was found that the mean age of the patients was 59.56 (SD=12.65) years. The majority of the patients were female (64.5%), married (83.0%), primary school graduates (43.0%), lived with their spouses (73.0%), and had an income less than 1000 Turkish Liras (68.0%). The majority of the participants had an additional disease other than HT (71.0%). The mean duration of hypertension was 8.84 (SD=7.68) years and the mean number of the medicines used was 1.68 (SD=1.0) (Table 1).

While the mean score of the perceived benefits was 26.06 (SD=4.03), the mean score of the perceived barriers was 14.53 (SD=4.02). Among the items in the subscale of benefits, the highest scores were obtained on "eating a low-salt diet will keep my heart healthy," "salty food is not good for me," and "eating a low-salt diet will keep me healthy" (Table 2). Among the items in the subscale of benefits, the highest scores were obtained on "food does not taste good on the low-salt diet," "I cannot to go to many places to eat because of the low-salt diet", and "following a low salt diet takes too much time" (Table 2).

The patients' perceived benefits of adherence to SR diet did not show significant differences in terms of socio-demographic characteristics (age, sex, marital status, who they lived with, employment status, level of income, disease duration, additional disease, and number of medicines used) ($p>.05$) (Table 1). Their perceived barriers of adherence to SR diet also did not show significant differences in terms of socio-demographic characteristics ($p>.05$) except for employment status. The unemployed participants had a higher level of perceived barriers of adherence to SR diet (14.75, SD=3.95) compared to the employed participants (13.34, SD=4.22) ($p=.039$) (Table 1).

Table 3 shows the attitudes and behavior of the participants regarding the low-salt/SR diet. 17% of the participants stated that they did not pay attention to salt restriction, 35% stated that they were always using a salt shaker on the dinner table, 42.5% stated that they never checked the amount of salt in ready-to-use foods, 40% expressed that they did not pay attention about salt restriction in a social environment, and 45% expressed that they were eating low-salt foods, and 65.5% stated that they did not eat salt-free bread (Table 3).

Table 3 shows the perceived benefit subscale scores of the participants in terms of their attitudes and behaviors. Perceived benefit subscale score of the participants stating that they did not pay

attention to salt restriction at all (24,71) was statistically significantly higher compared to those reported that they paid low, moderate and high levels of attention (25.23; 27.41; 21.41, respectively) (*p=.006*).

Table 1 •The perceived benefits and barriers in terms of socio-demographic characteristics of hypertensive individuals

Variables	n (%)	Benefits	*Kw-* x^2/ z	*p*	Barriers	Kw- x^2/ z	p
Age							
(Mean/SD;range)							
59.56/12.65;20-88)	6 (3.0)	26.67 (1.03)			13.83 (5.19)		
20-34	15(7.5)	24.80 (3.86)	5.356	.374	15.00 (3.82)	2.729	.742
35-44	48 (24.0)	26.65 (3.99)			14.33 (3.68)		
45-54	61(30.5)	26.43 (4.12)			14.25 (4.36)		
55-64	48(24.0)	25.69 (4.13)			14.81 (4.23)		
65-75	22(11.0)	25.23 (4.28)			14.95 (3.33)		
75 or older							
Gender							
Female	129 (64.5)	25.99 (4.31)	-,098	.922	14.60 (4.00)	-0.277	.782
Male	71(35.5)	26.17 (3.50)			14.39 (4.07)		
Marital status							
Married	166 (83.0)	25.90 (4.16)	-.911	.363	14.49 (4.11)	-.419	.675
Single	34 (17.0)	26.82 (3.26)			14.68 (3.56)		
With whom the patients live with					14.60 (3.93)		
With spouse	146 (73.0)	26.04 (4.02)			14.38 (4.55)		
With children	39 (19.5)	25.72 (4.25)	1.220	.543	14.20 (3.57)	.095	.954
Alone	15 (7.5)	27.07 (3.67)					
Educational level							
Illiterate	10 (5.0)	23.80 (5.49)			12.60 (3.31)		
Literate	45 (22.5)	25.60 (4.51)			15.40 (3.54)		
Primary	86 (43.0)	26.31 (3.76)	3.834	.429	14.85 (4.18)	5.574	.108
school	30 (15.0)	27.07 (2.90)			13.17 (3.58)		
Secondary	29 (14.5)	25.72 (4.32)			14.28 (4.49)		
school							
University							

Employment status							
Employed	32 (16.0)	25.97 (4.25)	-.184	.85	13.34 (4.22)	-2.06	***.039****
Unemployed	168 (84.0)	26.07 (4.00)			14.75 (3.95)		
Level of income †							
≤1000	136 (68.0)	26.23 (3.81)	-.556	.57	14.42 (4.03)	-.488	.625
>1000	41 (20.5)	25.32 (5.10)			14.17 (4.17)		
Additional disease							
Yes	142 (71.0)	26.15 (3.99)	3965.	-	14.75 (4.04)	-1.610	.107
No	58 (29.0)	25.83 (4.17)	5	.413	13.98 (3.94)		
Receiving information about the disease							
Yes	83 (41.5)	26.30 (3.91)	-,872	.383	14.40 (4.20)	-,277	.781
No	117 (58.5)	25.88 (4.13)			14.62 (3.89)		
Duration of hypertension ‡ **(Mean; SD/median; range)**							
(8.84;7.68/6;1-40)	91 (46.9)	25.84 (3.93)			13.86 (3.39)	7.079	
1-5	52 (26.8)	25.98 (4.48)	2.758	.430	14.75 (4.56)		.069
6-10	31 (16.0)	26.29 (3.88)			15.32 (4.25)		
11-16	20 (10.3)	27.00 (3.80)			16.00 (4.50)		
16 or more							
Number of § **medicines (mean; SD/median; range) (1.68;**							
1.0/0.88;1-5)	104 (52.0)	26.11 (3.90)			13.89 (3.62)		
1	54 (27.0)	26.63 (3.70)	0.895	.639	14.17 (3.68)	4.65	.098
2	33 (16.5)	26.24 (4.11)			16.39 (5.05)		
3 or more							

†n=177; ‡ n=194; § n=191; SD, standard deviation; x^2, Kruskal –wallis x^2 test; U, Mann Whitney U test;*p<0.05

Table 2 Adherence to the diet in hypertensive individuals (N=200)

Perceived benefits of adherence to the diet	**Mean (SD)**
1. Eating a low salt diet will keep me healthy.	4.10 (1.05)
2. Salty food is not good for me	4.11 (1.06)
3. Eating a low salt diet will keep my heart healthy	4.17 (0.96)
4. Eating a low salt diet will keep my swelling down	3.99 (0.98)
5. Eating a low salt diet will keep fluid from building up in my body	3.99 (0.93)
6. When I follow my low salt diet I feel better.	4.10 (0.94)
7. Eating a low salt diet will help me breathe more easily	3.83 (1.07)
Total	26.06 (4.03)
Perceived barrier of adherence to the diet	
8. I cannot go out to many places to eat because of the low salt diet	3.52 (1.25)
9. Food does not taste good on the low salt diet	3.67 (1.26)
10. Following a low salt diet costs too much money	2.32 (1.13)
11. Following a low salt diet takes too much time	2.59 (1.32)
12. Following a low salt diet is too hard to understand	2.45 (1.27)
Total	14.53 (4.02)

SD, standard deviation

Table 3. The perceived benefits and barriers in terms of attitudes and behaviors of hypertensive individuals

	n (%)	Beliefs			Barrier		
		Mean (SD)	x2/ z	p	Mean (SD)	K-w ^{x2}/ z	p
Paid attention to salt restriction †							
Not at all	34 (17.0)	24.71(4.89)	12.358	.006*	15.79 (3.89)	12.967	*.005**
Low	43(21,5)	25.23(3.95)			15.53 (3.73)		
Moderate	70(35,0)	26.47(3,60)			14.19 (3.79)		
High	49(24,5)	27.41(3.28)			13.24 (4.40)		
The use of salt shaker on the table? ‡							
Never	21 (10,5)	25.86 (6.11)	7.94	.094	17.29 (4.04)		
Rarely	30 (15.0)	27.83 (3.47)			15.27 (3.50)	17,61	*.001**
Sometimes	35 (17.5)	28.97 (4.42)			15.11 (3.50)		
Generally	38 (19.0)	28.21 (3.86)			13,70 (3.45)		
Always	70 (35.0)	28.67 (6.04)			13.60 (4.38)		
Checking ingredients in foods? §							
Never	85 (42.5)	25.02 (3.76)			15.65 (3.64)		
Rarely	33 (14.5)	26,78 (3.49)			13.03 (3.56)		
Sometimes	21 (10,5)	24.52 (5.37)	23.895	.000*	13.57 (3.87)	14,361	*.006**
Generally	28 (14.0)	28.32 (2.77)			15.04 (4.67)		
Always	33 (16,5)	27.03 (4.10)			13.18 (4.16)		
Do you pay attention to salt consumption in social environments?							
Never	40 (20.0)	26.93(5.76)			16.40(4.22)		
Rarely	26 (13.0)	26.96(4.90)			15.27 (4.06)	23.806	*.000***
Sometimes	41 (20,5)	27.54 (5.21)	15.694	.003*	14.12 (2.97)		
Generally	59 (29,5)	29.08 (4.58)			14.64 (4.06)		
Always	34 (17.0)	30.35(4.28)			12.03 (3.58)		
Food							
Never pays	56 (28.0)	26.23 (4.33)	7.131	.028*	15.20 (4.02)	1.37	.503
attention	90 (45.0)	26.08 (3.61)			14.27 (3.73)		
Low salt food	35 (17.5)	27.49 (3.66)			14.20 (4.57)		
Salt-free food							

Bread€							
Salt-free bread	32 (16.0)	27.47 (3.05)	-2.245	.025*	14.96 (4.20)	-.507	
Salty bread/normal bread	131 (65.5)	25.87 (3.96)			14.50 (4.14)		.612

† n= 196; ‡ n=194; § n=196; ǂ,n=181; €n=166 K-w x^2= Kruskal-Wallis test; z, Mann-Whitney U test; *p<.05; **p<.01

There was a statistically significant difference between the perceived benefit subscale scores of the participants in terms of their status of checking salt amount in ready-to-eat foods (Kw-x^2*=23.895*, p<.000); the score of the participants who stated that they sometimes checked the salt amount (24.52) was lower than the participants who stated that they never, rarely, generally, and always checked the salt amount (25.02, 26.78, 28.32, 27.03 respectively). In terms of paying attention to the salt restriction in social environments (family, friend meetings), no statistically significant difference was found between the perceived benefit subscale scores of the participants (Kw-x^2= 15.694, p=.0.003). Perceived benefit subscale score of the participants reporting that they always paid attention to the salt consumption in social environment (30.35) was higher than those who reported that they never, rarely, sometimes and usually checked it (29.08, 27.54, 26.96, 26.93, respectively). A significant difference was determined in the perceived benefit subscale scores of the participants in terms of status of paying attention to salt amount in their foods, the scores of those who stated that they ate salt-free food (27.49) were statistically significantly higher than those ate a low-salt and never checked it (26.08; 26.23, respectively) (Kw-x^2*=7.131, p=.028*). Similarly, the perceived benefit subscale score of those who stated that they ate salt-free bread (27.47) was statistically significantly higher compared to those who reported that they ate bread with normal salt (25.87) (z=-2.245, *p=.025*) (Table 3).

Table 3 shows the perceived barrier subscale scores of the participants in terms of their attitudes and behaviors. Perceived barrier scores of the participants were different according to their status of paying attention to salt restriction. Perceived barrier subscale score of those who reported that they paid too much attention to the salt restriction (13.24) were statistically significantly lower than those who reported that they paid never, low and moderate attention (Kw-x^2*=12,967,* 15.79, 15.53, 14.19, respectively) (p=.005). According to the status of using the salt shaker on the dinner table, a statistically significant difference was found between their perceived barrier subscale scores. The perceived barrier subscale score of those who stated that they did not use the salt shaker on the dinner table (17.29) was statistically significantly higher than those who rarely, sometimes, generally, and always (respectively 15.27, 15.11, 13.70, 13.60) used a salt shaker *(*Kw-x^2*=17.61 p=.001).* When the perceived barrier subscale scores of the participants were examined in terms of status of checking the salt amount in ready-to-eat foods, the score of those who reported that they never checked the salt amount (15.64) was seen to be statistically significantly higher than those who reported that they rarely, sometimes, usually and always (13.03, 13.57, 15.04, 13.18, respectively) checked the salt amount (Kw-x^2*= 14.361,* p=.006). A significant difference was determined in the perceived barrier subscale score of the participants based on status of paying attention to salt restriction in social environments; the score of those who stated that they never cared about salt restriction in social environments such as restaurants or familial meetings (16.40) was statistically significantly higher compared to those who generally (14.62), sometimes (14.12), and rarely (15.27) cared (Kw-x^2*= 23.806,* p<.000) (Table 3).

Discussion

Decreasing salt consumption is one of the modifiable factors in the development and control of HT. Thus, dietary SR is recommended along with medication in HT management (WHO, 2007; WHO, 2012; WHO, 2014). In this study, the

perceived benefits and barriers of patients with HT in adherence to an SR diet and their socio-demographic characteristics was analyzed. Perceived benefit and barriers are among the important components of health belief, and are effective for fulfillment / achievement of compliance (Carpenter, 2010). The perceived benefit score (26.06) was higher than the median (21) and the perceived barrier mean score (14.53) was lower than the median (15) (Table 2). Wechl et al., (2006), Walsh et al., (2011) and Kara (2017) analyzed adherence to SR diet in patients undergoing hemodialysis and reported that the mean score of perceived benefit was higher than the mid-point of the subscale total score and the mean score of the perceived barrier was lower than the mid-point of the subscale total score. The results were similar to those of studies conducted with different illness groups and cultures (Welch et al., 2013; Walsh and Lehane, 2011; Kara, 2017). In addition, these results may be associated with the fact that the participants were diagnosed with hypertension at least one year before and came for regular controls, where they would have been informed about maintaining a SR diet.

Perceived benefit

The participants of the study mostly stated "eating a SR diet protects heart health" (4.17, SD=0.96) and "salty foods are not good for me" (4.11, SD=1.06) as perceived benefits for adherence to the SR diet (Table 2). In the studies conducted on patients undergoing hemodialysis regarding perceived benefits and adherence to the SR diet, most patients stated that salty foods were not good for them and they would protect their heart health by eating less salty foods (Walsh and Lehane, 2011; Welch et al., 2013; Kara, 2017). In another study, the advantages of a healthy diet were largely associated with being healthy/preventing diseases, weight control, being fit, and quality of life (Holgado et al., 2000). The statement "SR diet has positive effects on heart and health" was indicated as a perceived benefit in the present study as in other studies (Walsh and Lehane, 2011; Welch et al., 2013).

Perceived barrier

The participants of the study stated that the major barrier factors for adherence to the SR diet were mostly taste (foods with low salt are tasteless) (3.67) and diet causing restrictions in social life (eating foods low in salt makes it hard for me to eat at restaurants/outside) (3.52). The reasons given for obstruction of adherence in the present study are similar to those presented in the literature (Bennett et al., 1997; Bennett et al., 2005; Krespi Boothby and Salmon, 2013; McMahon et al., 2012; Park et al., 2008; Turgut Kurt et al., 2012; Walsh and Lehane, 2011; Welch et al., 2013; Kara, 2017). In a previous study, it was reported that the barrier factors for salt restriction in patients with hypertension involved tasteless foods, being bored of eating the same foods, thirst (Krespi Boothby and Salmon, 2013; McMahon et al., 2012; Park et al., 2008; Walsh and Lehane, 2011; Welch et al., 2013), and lack of information (Elmas et al., 2012). In the study by Holgado et al. (2000), the barrier factors for sustaining a healthy diet were reported to be irregular working hours, failure to abandon favorite foods, lack of will, busy life-style, food prices, problems in food preparation, tasteless foods, and lack of information.

Perceived Benefits and Barriers in terms of Socio-Demographic Characteristics

The perceived barriers of the participants who were unemployed were statistically higher than employed ones. This result was associated with the fact that a great majority of the sample group were unemployed patients and housewives. These factors tended to negatively affect dietary adherence because unemployed people often had an irregular daily life and housewives often consumed food, regardless of the amount of salt they contain, when visiting friends (Mauro et al., 2008), and on top of that, tend to be more resistant to change (Holgado et al., 2000). Social environments such as a meeting of friends and entertainment were also shown to negatively affect dietary adherence (Mauro et al., 2008).

Perceived Benefits and Barriers in terms of Attitudes and Behaviors

The participants who had positive attitudes and behaviors towards SR diet *(those who paid importance to salt restriction, checked the amount of salt in instant foods, observed eating a salt-free diet in social environments, and ate salt-free meals and bread)* had high perceived benefit scores and

low perceived barrier scores. In a study, it was reported that a person had poor adherence to HT management due to poor perceived benefit status (Kamran et al., 2014). Another study suggested that a low level of barrier perception was associated with adherence to a better medicinal treatment (Yue et al., 2015). Participants' perceived benefits and barriers related to medicinal treatment and salt restriction should be evaluated to improve their adherence. Using this evaluation as a basis, actions should be taken to reduce the rate of perceived barriers and increase the rate of perceived benefits. Education based on Health Belief Model increases performance and develops positive health beliefs in hypertension management in the population with hypertension. Thus, the Health Belief Model can be used to promote proper self-care behaviors of the hypertensive patients (Khorsandi, Fekrizadeh & Roozbahani 2017).

The perceived barrier scores of those who did not use a salt shaker on the dinner table, did not check the amount of salt in packaged foods, and did not place importance on the amount of salt in the foods they ate in a social environment were high. This indicated that persons with HT had difficulty in adhering to these recommendations and adapting to salt restriction. These results indicated that even though persons with HT considered salt reduction as a significant barrier, they still believed in the benefits of this reduction. Because environmental factors are as important as individual factors in reducing salt. These results can have a particularly dramatic effect on the dietary habits in Turkey, considering that 55.5% of daily salt consumption is the salt added to the meals, 31.9% is from the bread salt and 12.6% is from the table salt. In addition, there are personal preferences and Turkey-specific reasons, such as preferring salty meals. Salty home-made foods are a common feature of Turkish cuisine and individuals may consume too much salt even if they do not add any. The daily bread consumption in Turkey is 400-500 grams per capita and 100 grams of bread contains 1.5-2 grams of salt on average, which suggests bread is an important salt source (Erdem, 2016).

Limitations of the study

This study has some limitations. Firstly, the study cannot be generalized because it was conducted in a single center. Secondly, considering that the included patients were diagnosed with HT, were receiving medical treatment, and were followed-up in the outpatient clinic, it can be asserted that these patients already had good knowledge about the SR diet. Lastly, the level of adherence to an SR diet was evaluated based on the patients' self-reports, and salt measurements in urine and blood were not performed to get more objective results.

Conclusion

In this study, it was shown that there was no difference in perceived benefits and barriers about the salt restricted diet in terms of socio-demographic characteristics except for perceived barrier based on employment status. However, the perceived benefits and barrier differed according to attitudes and behaviors such as paying attention to salt restriction, using salt shaker on the dinner table, checking the amount of salt when buying processed ready-to-eat food, and paying attention to salt consumption in social environment. As frequency of the salty food consumption increased, the perceived barrier increased as well.

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