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The effect of self-management support on knowledge level, treatment compliance and self-care management in patients with hypertension

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ABSTRACT

Objective: This study was carried out to determine the effect of self-management support given to patients diagnosed with hypertension on the hypertension knowledge level, treatment adherence and self-care management, and to examine the changes in patients' blood pressure after the self-management support.

Background: The rise of chronic diseases such as hypertension necessitates the equipment of patients with sufficient knowledge and skills necessary to manage their disease and self-care.

Methods: This randomised controlled research was conducted with a total of 137 patients, including 69 intervention and 68 control patients. Data were collected using the "Patient Information Form", "Hypertension Knowledge-Level Scale", "Hill-Bone Compliance to High Blood Pressure Therapy Scale" and "Self Care Management Process in Chronic Illness Scale" at the first interview and the last interview three months after the first interview. One week after the first interview, the patients in the intervention group received self-management support including information about hypertension and its management and blood pressure measurement skills.

Results: After self-management support, a significant improvement was found in hypertension knowledge level (p=0.000), treatment adherence (p=0.000), and self-care management (p=0.000) of patients in the intervention group A significant decrease was determined in systolic (p=0.000) and diastolic blood pressure (p=0.000) of patients in the intervention group.

Conclusion: Self-management support has shown positive effects in increasing hypertension knowledge level, adherence to hypertension treatment, self-care management, and blood pressure control in patients diagnosed with hypertension. This study also provides nurses with an approach in which they can effectively use training and counselling roles for patients.

Implications for research, policy, and practice: Patients diagnosed with hypertension should be educated by nurses about the disease. Nurses should teach the patients who are diagnosed with hypertension the ability to monitor their blood pressure at home. Cardiovascular rehabilitation nursing units should be established in hospitals to provide more effective self-management support to hypertensive patients.

What is already known about the topic?
• Education and support programs offered by nurses are important in controlling chronic diseases such as hypertension.
• Guidelines for the management of arterial hypertension emphasise the importance of self-management support in controlling hypertension.

What this paper adds
• Self-management support is an effective approach to increasing hypertension knowledge level, adherence to treatment, and self-care management.

• Self-management support helps patients to achieve blood pressure control and optimal blood pressure values.
• Self-management support empowers patients by increasing their control over the disease.

Keywords: Blood pressure control; hypertension knowledge level; self-management; treatment adherence

BACKGROUND

Hypertension is a chronic disease and a common public health problem worldwide. Hypertension is responsible for 45% of heart disease-related deaths, 51% of stroke-related deaths, and 6% of adult deaths worldwide.[1,2] The prevalence of hypertension in adults is between 30-45% in the world,[3] and 30.3% in Turkey, where the prevalence of hypertension in women (32.3%) is reported to be at a higher rate compared to men (28.4%).[4]

The main goal in the treatment of hypertension is to ensure optimum blood pressure control in the patient.[3] One of the most important factors affecting blood pressure control is treatment, adherence, and persistence.[5] Non-adherence to treatment is a common problem in hypertension, which is a chronic disease, and the World Health Organization reports that approximately half of the individuals with chronic diseases do not adhere to treatment.[6] Non-adherence to treatment in hypertensive patients adversely affects patients' health and causes increases in cardiovascular risk, complications, hospitalisation time and rate, healthcare costs, mortality, and morbidity.[2,3,5] Studies show that in patients with hypertension, non-adherence to treatment is neglected. Although being an important problem,[7] blood pressure control cannot be increased above 25% due to low adherence, and blood pressure of patients who are successful and willing to comply with treatment can be more easily controlled.[2,7]

Chronic diseases such as hypertension cause physical, psychological, social, and economical problems, affecting the independence of the individual and increasing their care needs.[8] Therefore, another important factor that is effective in controlling hypertension is increasing knowledge and awareness about the disease.[9] Studies have reported that hypertension patients have moderate or low levels of knowledge about the disease, and patients have a lack of information about the risk factors of hypertension, complications, normal blood pressure values, factors that increase blood pressure, nutrition in hypertension, treatment adherence, and long-term treatment.[10,11] Lack of information about hypertension is one of the most important reasons for ignoring high blood pressure in society. Training of patients is very important in optimising blood pressure and regular monitoring.[12]

The increasing prevalence of hypertension worldwide also increases the importance of treatment as well as providing patients with self-management skills through various training and support programs.[13] Self-management is the art of self-managing the disease, which includes the ability of individuals with chronic diseases to manage the symptoms, treatment, and care of the disease, and to make lifestyle changes in the physical, psychological, and social aspects.[14] The content of self-management support in patients with hypertension consists of teaching knowledge and skills on nutrition, physical activity, disease treatment, complications, drug therapy, regular monitoring, lifestyle changes, and blood pressure monitoring at home. Studies have reported that self-management support increases awareness of the importance of the disease in hypertensive patients,[15] provides motivation for personal control over the disease, positively affects clinical outcomes, and increases the number of days patients allocate for physical activity.[16]

The World Health Organization draws attention to the fact that nurses create awareness in society through training to achieve success in combating hypertension.[17] Nurses can increase control over the disease through initiatives that support individuals' self-management. In this study, it was aimed to determine the effect of self-management support given to patients diagnosed with hypertension on the hypertension knowledge level, treatment adherence and self-care management, and to examine the change in blood pressure of patients after the self-management support.

STUDY DESIGN AND METHODS

DESIGN

The study, conducted between July 2017 and August 2018, was designed as a randomised controlled intervention study.

PARTICIPANTS

The study population comprised patients with hypertension from the Internal Medicine and Cardiology Outpatient Clinic of a hospital providing secondary care in Edirne province of Turkey. Power analysis was used to determine the sample size. There is not enough data in the literature on the effects of self-management support given to hypertensive patients on hypertension knowledge level, compliance with treatment, self-care management, and blood pressure values. For this reason, it was calculated that at least 64 patients should be included in each of the intervention and control groups, with a 5% margin of error and 80% power value to test the moderate effect size (d=0.5) regarding self-management support. Considering the possible losses during the research process, 70 patients were included in each group. Randomisation was determined by using the Researcher Randomizer program (Urbaniak G. C. & Plous S., Research Randomizer; www.randomizer.org), provided that the number of individuals in the intervention and control groups were equal, regardless of the age and gender characteristics of the participants. The research involved patients that were followed up for at least six months with the diagnosis of essential hypertension, using antihypertensive medication, having a semi-automatic blood pressure monitor that measures blood pressure from the upper arm, communicative, and aged between 18-65. Patients who had changes in antihypertensive drug treatment in the past month, who had other accompanying chronic diseases and documented cognitive impairments were excluded from the study.

DATA COLLECTION TOOLS

Patient Information Form: Patient information form developed by the researchers includes the socio-demographic and disease-related characteristics of the patients.

Hypertension Knowledge-Level Scale: The scale was developed by Baliz Erkoc et al. in Turkey to measure patients knowledge level of hypertension.[18] The scale consists of 22 expressions. It has six sub-dimensions including definition, medical treatment, adherence to medication, lifestyle, diet, and complications. The expressions in the scale are in the form of a full sentence that can be true or false, and participants are asked to evaluate each statement in the scale as true, false, or I do not know. Correct answers are worth 1 point, wrong answers or I do not know are worth 0 points. The total score that can be obtained from the scale varies between 0-22, and as the obtained score increases, the hypertension knowledge level increases. In the validity and reliability study conducted by Baliz Erkoc et al., it was reported that the Cronbach's alpha

values of the sub-dimensions of the scale ranged from 0.59 to 0.92, and the total Cronbach's alpha value of the scale was 0.72.[18] In this study, the Cronbach's alpha value of the scale was found to be 0.80 in the first interview, and 0.86 in the last interview in the intervention group, and 0.86 in the first interview and 0.87 in the last interview in the control group.

Hill-Bone Compliance to High Blood Pressure Therapy Scale: Turkish validity and reliability of the scale developed by Kim et al. were performed by Karademir et al.[19] The Four-point Likert (0=never, 3=always) scale consists of 14 questions. The scale has three sub-dimensions including interview, medical and nutrition sections. The total scores that can be obtained from the scale vary between 0 and 42, while 0 points indicate perfect adherence to the treatment, and adherence to the treatment decreases as the score increases. In the validity and reliability study conducted by Karademir et al., it was reported that the Cronbach's alpha values of the sub-dimensions of the scale ranged from 0.62 to 0.83, and the total Cronbach's alpha value of the scale was 0.72.[19] In this study, the Cronbach's alpha value of the scale was 0.85 in the first interview and 0.89 in the last interview in the intervention group, 0.84 in the first interview and 0.80 in the last interview in the control group.

Self Care Management Process in Chronic Illness Scale: Turkish validity and reliability of the scale developed by Jones et al. were performed by Hancerlioglu.[20] The Five-point Likert scale (1=strongly disagree, 5=strongly agree) consists of 35 items with two sub-dimensions including self-protection and social protection. Total scores that can be obtained from the scale vary between 35-175 points, and the increase in the score indicates an increase in self-care management of the individual. In the validity and reliability study conducted by Hancerlioglu, it was reported that the Cronbach's alpha values of the sub-dimensions of the scale ranged from 0.68 to 0.83, and the total Cronbach's alpha value of the scale was 0.85.[20] In this study, Cronbach's alpha value of the scale was 0.89 in the first interview and 0.91 in the last interview in the intervention group, 0.88 in both the first and the last interview in the control group.

DATA COLLECTION PROCEDURE

Study data were collected through face-to-face interviews with patients. The interviews were held in the training room of the hospital. Three interviews were conducted with the intervention group (n=70), the first interview, the self-management support interview, and the final interview. Two interviews were made with the control group (n=70), the first and the last. Patient Information Form, Hypertension Knowledge-Level Scale, Hill-Bone Compliance to High Blood Pressure Therapy Scale, and Self Care Management Process in Chronic Illness Scale (pre-test) were filled in the first interview with patients in both the intervention and control groups. The blood pressures of the patients in both groups were measured and recorded by a researcher. A calibrated

semi-automatic sphygmomanometer was used to measure blood pressure from the upper arm. The first interview took approximately 25-30 minutes for each patient.

After the first interview, the patients in the control group did not receive any intervention other than the routine recommendations of the outpatient clinic physician, and an appointment was made three months later for the last interview. Patients in the intervention group were given an appointment for self-management support one week after the first interview. Patients were asked to measure their blood pressure twice a day, in the morning and the evening for one week until this appointment date, and record each measurement. They were asked to bring their blood pressure records and their blood pressure monitors when coming to the self-management support interview. The patients were reminded by phone one day before the appointment date.

The self-management support interview was conducted one-on-one by the researcher in the training room of the hospital, using the face-to-face interview method. The content of the self-management support made in this meeting was determined in line with the literature (1, 2, 3, 21). During the face-to-face meeting within the scope of self-management support;

- Information about the definition of hypertension, treatment methods, how to manage drug therapy and the importance of treatment adherence;
- Information about healthy lifestyle changes such as diet, activity, and stress management that are effective in the management of hypertension;
- Information about what to consider before and during blood pressure measurement;
- The patients were taught skills on how to self-measure blood pressure at home. Patients were asked to measure their blood pressure using their blood pressure monitors in accordance with the technique taught. The procedure was repeated until the patients could correctly perform the measurement.

In addition, patients were given a Hypertension Management Information Booklet prepared by the researchers, containing the written and visual contents of the information conveyed to the patients by face-to-face interview method. The patients were given an appointment three months later for the last interview for the post-test application. One week before the last interview, they were asked to measure and record their morning and evening blood pressures using the same sphygmomanometer with the technique taught. Interviews with self-management support were conducted one-on-one and lasted approximately 60-90 minutes for each patient.

Patients in the intervention and control groups were given a call to remind of the appointment date one week before the last interview. Patients in the intervention group were reminded to take and record blood pressure measurements for one week. The Hypertension Knowledge-Level Scale,

the Hill-Bone Compliance to High Blood Pressure Therapy Scale, and the Self Care Management Process in Chronic Illness Scale (post-test) were administered to both the intervention and control group patients on the last interview day. The blood pressures of the patients in both groups were measured and recorded by one of the researchers. Home blood pressure measurements of the intervention group were received.

One patient in the intervention group did not attend the interview, where self-management support was given, and two patients in the control group did not attend the post-test application. Thus, the research was completed with a total of 137 patients, 69 in the intervention group and 68 in the control group. The flow chart of the study is given in Figure 1. Hypertension Management Information Booklet was given to the patients in the control group after the post-test application in terms of benefit and ethical principles.

DATA ANALYSIS

The data were analysed in the SPSS (Statistical Package for Social Sciences for Windows) version 22.0 package program (IBM Armonk, NY, USA). Pearson chi-square test, Fisher-Freeman-Halton Exact Test, and independent samples t-test were used to test the equivalence between intervention and control groups, and descriptive statistics including mean, standard deviation, and frequency were used for socio-demographic and disease-related characteristics. Wilcoxon test and Paired samples test were used to determine the difference between repeated measurements, and Mann Whitney U test was used to compare quantitative continuous data between two independent groups. The statistical significance limit value was accepted as $p < 0.05$.

ETHICAL CONSIDERATION

The study was approved by the Trakya University Faculty of Medicine Scientific Research Ethics Committee on 26.04.2017 and numbered 2017/126. Participants were informed about the purpose of the study in accordance with the Helsinki Declaration. Participants were voluntarily invited to participate in the study and their written informed consent was taken. The participants were informed that their personal data and privacy would be protected and they can leave the research at any time.

RESULTS

Sociodemographic and disease-related characteristics of the participants are summarised in Table 1. There was no significant difference between the sociodemographic and disease-related characteristics of the patients in the intervention and control groups ($p > 0.05$).

TABLE 1: COMPARISON OF SOCIODEMOGRAPHIC AND DISEASE-RELATED CHARACTERISTICS BETWEEN THE TWO STUDY GROUPS (N=137)

Sociodemographic and clinical characteristics n (%)	Intervention group (n=69)	Control group (n=68)	t/X²	p
Age (years) (Mean±SD)	56.23±6.96	57.58±6.35	1.191[†]	0.236
Gender				
Female	34 (49.3)	37 (45.6)	0.362[‡]	0.333
Male	35 (50.7)	31 (54.4)		
Education				
Primary School	39 (56.5)	43 (63.2)	0.642[‡]	0.423
Secondary and High School	30 (43.5)	25 (36.8)		
BMI				
Normal	3 (4.3)	3 (4.4)	1.064[§]	0.786
Overweight	42 (60.9)	36 (53.0)		
1st degree obese	20 (29.0)	23 (33.8)		
2nd degree obese	4 (5.8)	6 (8.8)		
Tea/coffee consumption				
Yes	56 (81.2)	59 (86.8)	0.789[‡]	0.255
No	13 (18.8)	9 (13.2)		
Alcohol consumption				
Yes	8 (11.6)	10 (14.7)	0.291[‡]	0.388
No	61 (88.4)	58 (85.3)		
Smoking				
Yes	20 (29.0)	23 (33.8)	0.372[‡]	0.355
No	49 (71.0)	45 (66.2)		
Time of HT diagnosis				
1-5 years ago	41 (59.4)	38 (55.9)	0.385[§]	0.825
6-10 years ago	19 (27.5)	22 (32.3)		
>10 years ago	9 (13.1)	8 (11.8)		
Antihypertensive drug treatment type				
Monotherapy	51 (73.9)	47 (69.1)	0.387[‡]	0.534
Combination	18 (26.1)	21 (30.9)		
Duration of antihypertensive drug use				
1-3 years	55 (79.7)	47 (69.1)	2.020[‡]	0.110
>3 years	14 (20.3)	21 (30.9)		
Ability to notice changes in blood pressure				
Yes	34 (49.3)	41 (60.3)	1.678[‡]	0.130
No	35 (50.7)	27 (39.7)		
Blood pressure monitoring at home				
Yes	37 (53.6)	43 (63.2)	1.302[‡]	0.167
No	32 (46.4)	25 (36.8)		
Disease-specific diet				
Salt-free	19 (27.5)	14 (20.6)	1.454[§]	0.483
Salt-free and fat-free	5 (7.3)	8 (11.8)		
No diet	45 (65.2)	46 (67.6)		

SD: Standard Deviation, [†]Independent Samples t-Test, [‡]Pearson Chi-square test, [§]Fisher-Freeman-Halton Exact Test

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TABLE 2: COMPARISON OF THE SCALE SCORES OF THE INTERVENTION AND CONTROL GROUP PATIENTS BEFORE AND AFTER INTERVENTION (N=137)

Variables	First Interview				Last Interview			
	Intervention group (n=69)	Control group (n=68)	Z¶	p	Intervention group (n=69)	Control group (n=68)	Z¶	p
Hypertension Knowledge Level (Mean±SD)								
Total Score	8.13±4.57	9.79±5.38	–1.763	0.078	20.08±3.07	1.48±0,81	–8.725	0.000*
Definition	0.98±0.89	1.16±0.89	–1.154	0.249	1.66±0.53	1.48±0.81	–0.724	0.469
Medical Treatment	1.24±1.47	1.35±1.45	–0.577	0.564	3.58±0.79	1.73±1.45	–7.147	0.000*
Adherence to Medication	1.65±0.99	1.82±1.18	–0.656	0.512	3.65±0.68	1.82±1.18	–8.251	0.000*
Lifestyle	1.91±1.48	2.26±1.60	–1.253	0.210	4.75±0.75	2.33±1.69	–8.436	0.000*
Diet	0.50±0.79	0.64±0.84	–1.068	0.286	1.85±0.43	0.73±0.85	–7.522	0.000*
Complications	1.82±2.03	2.54±2.10	–1.964	0.051	4.58±1.26	2.86±2.22	–5.180	0.000*
Compliance with Hypertension Treatment (Mean±SD)								
Total Score	13.84±5.42	11.89±5.11	–2.284	0.022**	3.08±4.18	11.82±4.66	–8.926	0.000*
Medical	6.47±3.58	5.29±3.67	–2.017	0.044**	1.21±2.16	5.33±3.34	–7.475	0.000*
Nutrition	3.66±2.02	3.20±1.47	–1.193	0.233	0.53±1.10	3.32±1.52	–9.209	0.000*
Interview	3.69±1.41	3.39±1.55	–1.300	0.194	1.33±1.51	3.16±1.52	–6.614	0.000*
Self-care Management (Mean±SD)								
Total Score	110.55±14.31	111.20±14.06	–0.278	0.781	152.01±14.94	113.92±13.94	–9.402	0.000*
Self-protection	67.37±8.75	68.61±9.62	–0.539	0.590	93.10±8.67	70.08±9.41	–9.270	0.000*
Social protection	45.78±8.28	44.98±6.63	–0.677	0.499	62.47±8.46	46.36±6.93	–8.600	0.000*

Mann Whitney U test, *p<0.001, **p<0.05

Table 2 shows the preliminary test and final test mean scores of the patients in the intervention and control groups. While there was no significant difference between the hypertension knowledge level and self-care management total scores of patients in both groups (p>0.05), the total score of adherence to hypertension treatment was lower in the control group (p<0.05).

To determine the effect of self-management support on the hypertension knowledge level, treatment adherence, and self-care management of patients in the intervention group, the scores of the patients in both groups at the last interview were compared (Table 2). Accordingly, when compared with the control group, the Hypertension Knowledge-Level Scale total score (Z=-8.725, p<0.001), medical treatment (Z=-7.147, p<0.001), adherence to medications (Z=-8.251, p<0.001), lifestyle (Z=-8.436, p<0.001), diet (Z=-7.522, p<0.001) and complications (Z=-5.180, p<0.001) sub-dimension scores were higher for patients in the intervention group. After self-management support, treatment adherence total score (Z=-8.926, p<0.001), medical (Z=-7.475, p<0.001), nutrition (Z=-9.209, p<0.001), and interview (Z=-6,614, p<0.001) sub-dimension scores of intervention group patients were lower than the patients in the control group. After the self-management support, the total score of the Self Care Management Process in Chronic Illness Scale (Z=-9.402, p<0.001), self-protection (Z=-9.270, p<0.001), and social

protection (Z=-8.600), p<0.001) sub-dimension scores of patients in the intervention group were higher compared to the patients in the control group.

In the first interview, there was no statistically significant difference between the mean blood pressure values measured by the researcher in patients in the intervention and control groups (Table 3). To determine the effect of self-management support on the blood pressure of patients in the intervention group, the mean blood pressure values measured by the researcher in the last interview of patients in both groups were compared (Table 3). Accordingly, when compared with the control group, patients in the intervention group were found to have lower systolic (t=-6.049, p<0.001) and diastolic (t=-7.192, p<0.001) blood pressure as measured by the researcher.

In the study, morning and evening blood pressure mean values measured at home for one week before and after self-management support were compared (Table 4). In the last interview after self-management support, it was determined that there was a significant decrease in the morning and evening systolic and diastolic blood pressure values of the patients in the intervention group (p<0.001).

TABLE 3: COMPARISON OF THE BLOOD PRESSURE MEAN VALUES OF THE INTERVENTION AND CONTROL GROUP PATIENTS MEASURED BY THE RESEARCHER IN THE FIRST INTERVIEW AND THE LAST INTERVIEW (N=137)

Blood Pressure	First interview				Last interview			
	Intervention group	Control group	t[†]	p	Intervention group	Control group	t[†]	p
Systolic BP (Mean±SD)	138.08±7.05	136.75±7.78	1.054	0.294	128.52±5.35	134.88±6.86	−6.049	0.000*
Diastolic BP (Mean±SD)	90.68±6.23	90.42±5.96	0.244	0.807	83.85±4.36	89.54±4.89	−7.192	0.000*

BP: Blood Pressure; [†]Independent Samples t-Test, *p<0.001

TABLE 4: COMPARISON OF MORNING AND EVENING HOME BLOOD PRESSURE MEAN VALUES MEASURED BY INTERVENTION GROUP PATIENTS BEFORE AND AFTER SELF-MANAGEMENT SUPPORT (N = 69)

Blood Pressure	Morning				Evening			
	Before self-management support	After self-management support	t[††]	p	Before self-management support	After self-management support	t[††]	p
Systolic BP (Mean±SD)	134.71±8.09	127.18±6.59	9.391	0.000*	135.51±7.43	127.67±5.55	10.855	0.000*
Diastolic BP (Mean±SD)	89.00±5.06	83.05±4.28	11.134	0.000*	89.73±5.04	83.58±3.85	11.412	0.000*

[††]Paired samples test, *p<0.001

DISCUSSION

To the best of our knowledge, there are a limited number of studies in the literature that examine self-management support in patients with hypertension, and there are a limited number of intervention studies examining the effects of self-management support.[16,21,22] The results of our study showed that self-management support is effective in hypertension patients increasing knowledge about the disease, adherence to treatment, self-care management, and lowering blood pressure. Self-management support has been evaluated in studies conducted with individuals with different chronic diseases, and this intervention has been reported to have positive effects in improving health and controlling the disease.[22,24] Our study results are compatible with previous studies conducted with different patient populations, providing positive evidence for the use of self-management support in hypertensive patients.

In our study, it was found that the self-management support applied to hypertension patients significantly increased the total scores of the hypertension knowledge-level, medical treatment, adherence to medication, lifestyle, diet, and complications sub-dimensions. In similar studies, it is reported that the disease-specific education programs given under the leadership of nurses have a significant and positive effect on increasing the level of knowledge in patients with hypertension.[22,25,26] In this study, the increased hypertension knowledge level in patients in the intervention group after self-management support confirms that it is effective to apply self-management support programs in patients with hypertension.

The time allocated to patients within the scope of routine outpatient services around the world is quite limited. After the diagnosis of hypertension, the patient cannot be allocated enough time to be informed about the disease.[12] Turkey has specialised units such as infection control nursing, diabetes nursing, stoma, wound care nursing, and hemovigilance nursing, however, there are no special nursing units for cardiovascular diseases. It is thought that increasing the time allocated to hypertension patients and ensuring that patients are adequately informed can only be possible by establishing a cardiovascular rehabilitation nursing unit. Otherwise, the patients' knowledge about their diseases is limited to what they have acquired through their efforts or heard from the people around them.[12,27] Self-management support given to patients including the information about hypertension, hypertension-related complications, the methods used in treatment, the importance of regular medication use, and adherence to treatment, diet, activity, stress management that are effective in the management of hypertension. Therefore, after the self-management support, patients in the intervention group could have more detailed information about hypertension compared to patients in the control group.

Hypertensive patients who do not comply with treatment display unhealthy behaviours such as not having regular monitoring and checkup, not believing in the benefit of medications when they feel better or worse, consciously or unconsciously taking medications with a missing dose or not taking at all, taking too many calories, taking too much sodium and fat in the diet, smoking, and inadequate physical activity.[2] Therefore, it is reported that the incidence of complications, mortality, and morbidity increases in these patients.[2,5] In our study, there was a significant difference in treatment adherence between the intervention and the control groups in favor of the control group, and the adherence of the control group patients to the treatment was better than the patients in the intervention group. However,

after the self-management support was given, it was found that the treatment adherence in patients in the intervention group significantly improved in all dimensions including medical, nutrition, and interview. Studies have shown that different intervention studies such as home visits,[22] community-based health education programs[25] and disease-specific education programs[28] significantly improve patients' adherence to treatment. In fact, in a study where the effect of self-management was evaluated in controlling hypertension, it was reported that the rate of regular use of medication increased from 55 to 77% after the training.[21] Education and counselling are among the roles that nurses use their autonomy at a high rate.[29] By using these roles, nurses can increase the adherence of patients to the treatment as well as their knowledge and awareness about the diseases through the support programs they will provide to the patients.

The patients to effectively manage their self-care improves their quality of life and reduces complications, hospitalisations, morbidity, and mortality associated with the disease.[30,31] In this respect, self-care management enables patients with hypertension to have control over the disease and solve their problems on their own.[20] It was found that the self-management support implemented in our study significantly increased self-care management, including the dimensions of self-protection and social protection in patients in the intervention group. In similar studies conducted in line with the results of our study, it is reported that programs that include decision support, clinical information, and self-management provide significant improvements in the self-care behaviour of hypertensive patients and increase their self-care management levels.[16,26,32] Self-management support is thought to be an effective intervention in terms of providing the patients with the knowledge, skills, and motivation that enable them to self-manage their disease.

There is a consensus in the European Society of Cardiology (ESC) Guidelines for the Management of Arterial Hypertension that the optimum blood pressure value should be SBP<120 mmHg and DBP<80 mmHg.[3] Keeping blood pressure under control and keeping it at an optimum level is the basis of hypertension treatment. In this study, the mean blood pressure values measured by the researcher at the first interview were in the Stage I hypertension classification in both the intervention and control groups.[3] After self-management support, it was determined that there was a significant decrease in the blood pressure of patients in the intervention group, and the mean blood pressure values measured by the researcher were in the normal classification according to the ESC Guidelines for the Management of Arterial Hypertension.[3] The results of our study are consistent with the results of other studies in the literature and show that self-management support[16,32,33], and disease-specific education[25,34,35] have a significant effect on decreasing systolic and diastolic blood pressure values.

Within the scope of the self-management support implemented in the study, the patients were taught the ability to measure blood pressure on their own. The training was given on what to consider before and during the measurement and how to do the measurement. After self-management support, it was determined that there was a significant decrease in blood pressure values measured by the patient at home in the intervention group, from high to normal category.[3] The self-measurement of blood pressure by patients increases their adherence with the treatment and makes it easier to control the blood pressure.[3,36,37] Self-blood pressure measurement at home is effective in the success of the treatment by ensuring that the patient is included in the treatment process.[3] We can say that self-management support and teaching the patient how to measure blood pressure are effective in ensuring both control of the disease and control of the blood pressure.

CONCLUSION

Self-management support increased the hypertension knowledge levels, adherence to treatment, and self-care management of hypertensive patients and provided a significant decrease in systolic and diastolic blood pressure. This study provides information that can help healthcare professionals organise programs aimed at informing patients diagnosed with hypertension about the disease and developing their self-management skills.

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