The Effect of Education Provided Using the Roy's Adaptation Model on Hypertension Management

Dilek Kilic, PhD
Ataturk University, Public Health Nursing Department, Ataturk Universty Faculty of Nursing, Erzurum, Turkey

Nihan Turkoglu
Assistant Professor, Faculty of Nurse, Public Health Nursing, Ataturk University Faculty of Nursing, Erzurum, Turkey

Hasret Yalcinoz Baysal
Assistant Professor, Ataturk Universty, Public Health Nursing Department, Ataturk Universty Faculty of Nursing, Erzurum, Turkey

Derya Adibelli
Assistant Professor, Akdeniz Universty, Akdeniz Kumluca Faculty of Health Sciences, Antalya,Turkey

Sonay Bilgin
Assistant Professor, Ataturk Universty, Public Health Nursing Department, Ataturk Universty Faculty of Nursing, Erzurum, Turkey

Rahsan Cevik Akyil, PhD
Adnan Menderes University, Internal Medicine Nursing Department, Aydın, Turkey

Correspondence: Nihan Turkoglu**,** Faculty of Nurse, Public Health Nursing, Ataturk University, Erzurum, Post code: 25240, Turkey   E-mail:nihan-25-kilic@hotmail.com   nturkoglu@atauni.edu.tr

Abstract

A pretest–post-test quasi-experimental design with a control group was used in this study, which aimed to determine the effect of the education provided for hypertension patients on the management of this disease using the Roy Adaptation Model. The study population consisted of the patients registered in 7 Family Health Centers in Erzurum city center who were diagnosed with hypertension. The study sample consisted of 155 hypertension patients who had been referred to these centers. The data were collected using a patient description form, the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment, and a hypertension management form. After the educational program, the mean score of the patients in the experimental group on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment increased; however, the difference between the groups was not statistically significant (p>0.05). Their mean score on the Hypertension Management Form also increased (p<0.001), and blood pressure values were lower than before the educational program (p<0.05); by both these measures, the difference between the groups was statistically significant. The findings of this study showed that the education provided for hypertensive patients using the Roy Adaptation Model was effective in ensuring hypertension management and reducing blood pressure.

Keywords: Education, Hypertension, Hypertension management, Roy Adaptation Model.

Introduction

Quality nursing care is ensured by applying critical thinking and critical decision making skills simultaneously during the nursing process (Korkmaz, 2011). Nursing is a scientific process used to diagnose the health-care needs of healthy or unhealthy people and providing quality care specific to each person (Kaya, Babadag, Yesiltepe Kacar, &Uygur, 2010). Nursing models and theories, important components of the scientific knowledge content of nursing, guide nurses at every stage of nursing process (Kaya, 2008; Kaya, Babadag, Yesiltepe Kacar, &Uygur, 2010). Therefore, it is important that the nursing process is shaped in accordance with a nursing model to carry out scientific and systematic nursing practices and provide people with specific care for their needs (Kaya, 2008).

Using models or theories in nursing enables nurses to develop solutions by encouraging them to analyze problems in practice, to focus on nursing practices rather than medical practices, and to provide a systematic, controlled, purposeful and effective nursing care (Kacaroglu-Vicdan & Gulseven-Karabacak, 2014, Kacaroglu-Vicdan 2010, Ozkaraman, Ozer & Balci-Alpaslan 2012, Ursavas, Karayurt & Iseri, 2014). Roy's Adaptation Model, one of the frequently used models or theories in nursing, aims to accelerate and improve individuals' adaptation to health and to disease.

Hypertension is one of the diseases for which adaptation to treatment is crucial. It is among the most important risk factors and preventable causes of death around the world. In 2008, about 40% of the adult world population had hypertension. Globally, 7.5 million people die due to hypertension: 12.8% of all deaths (www.who.int).

The Turkish Hypertension Prevalence Study (PatenT) shows that hypertension is a quite frequently observed, but insufficiently treated, health problem in Turkey. The data of PatenT 2012 found hypertension prevalence in the population older than 18 years to be 30.3% (www.turkhipertansiyon.org). Of people with high blood pressure, 54.7% are aware of their disease: 40.6% of males and 66.9% of females (Chobanian et al., 2003).

The international literature emphasizes the importance of changing life styles and adaptation to drug therapy for detection, evaluation, treatment, and prevention of high blood pressure (Chobanian et al., 2003). Although important progress has been made on hypertension management, 50% to 75% of the patients still cannot control their blood pressure (Olivera et al., 2005). The rate of patients' adaptation to long-term treatment in hypertension management is reported to be lower than 50% (Aminoff, 2001). Maladaptation covers non-adherence to drug therapy, not referring to doctors for prescriptions, not going for check-ups regularly, and unhealthy habits such as smoking, high calorie intake, and a diet rich in fat and sodium (Hilland & Miller, 2004); and may result in the complications such as stroke, heart failure, and end-stage renal disease.

Col, Ozdemir and Ocaktan (2006) reported that hypertensive patients' control and treatment rates were low, obesity and smoking rates were high, and behavioral changes regarding their lifestyles were insufficient; and that measures should be taken for hypertensive patients. Disease management programs should be also implemented to eliminate the negative social and financial consequences of hypertension. Gocer (2008) determined that Roy Adaptation Model's conceptual structure can be used to detect the obstacles the obstacles that patients encounter in adapting to their chronic disease and assist health care professionals providing care for patients with chronic disease. Other studies in the literature have also reported that education and follow-ups within the scope of disease management program for hypertension were effective for the patients (Klootwy, Sanoski, & Pharm, 2011, Serumaga et al., 2011, Giuseppe et al., 2013).

This study aims to determine the effect of the education planned for hypertensive patients based on the Roy Adaptation Model on hypertension management.

Methods

Study design

A pretest-posttest quasi-experimental design with a control group was used in this study. The study was conducted in the family health centers in Erzurum city center.

Participants

The study population consisted of the patients registered in 7 family health centers in Erzurum city center who were diagnosed with hypertension, were aged 35 and older, and perform their daily living activities independently. The study sample consisted of 155 hypertension patients residing in Erzurum city center who referred to these family health centers and performed their daily living activities independently. Non-probability random sampling method was used to select the study sample, constructed to include the 75 patients who visited the family health centers on one Wednesday in the experimental group and the 80 patients who visited the centers on one Thursday in the control group. These patients agreed to participate in the study. The power analysis indicated that the study sample's representation level was 100%, effect size was 0.8, margin of error was 0.05, and confidence interval was 95%.

Ethical Approval: This study's written permission was obtained from the Ethics Committee of Ataturk University, Faculty of Health Sciences.

Study Variables

Dependent variables: Hypertension management, BMI, blood pressure values

Independent variables: Education provided through home visits using the Roy Adaptation Model

Control variables: Hypertensive patients' age, gender, education level, family type, monthly income, smoking, alcohol intake, duration of disease

Data Collection Tools

The data were collected using a patient description form on patients' sociodemographic and disease-related characteristics, the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment, and a hypertension management form.

The Patient Description Form evaluates the sociodemographic characteristics of the patients using 15 questions. Of these questions, 9 refer to patients' descriptive characteristics and 6 refer to their hypertension-related characteristics.

The Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment was developed by Ogedegbe, Mancuso, Allegrante and Charlson (2003) in 2003 to assess self-efficacy regarding the adaptation to drug therapy in a population with high-risk hypertension receiving antihypertensive treatment. The scale was tested by Gozum and Hacıhasanoglu (2009) for validity and reliability in Turkish. The Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment analyzes the factors that affect regular use of antihypertensives by hypertensive patients using 26 statements to which the patients' agreement indicates their self-efficacy/confidence level as a three-point Likert type scale ("Not sure at all," "Slightly sure," and "Very Sure"). The total score of the scale ranges between 26 and 78. Higher scores show a good adaptation to antihypertensive treatment. The Cronbach's Alpha coefficient was 0.93 in the present study.

The Hypertension Management Form was developed by the researchers in line with the literature and assesses nutrition, exercise, stress control, interpersonal relationships, health responsibility, BMI, and blood pressure control using a three-point Likert type scale ("Never," "Sometimes," and "Always"). The total score of the scale ranges between 21 and 63. Higher total scores show better hypertension management. Its Cronbach's Alpha coefficient was 0.92 in the present study.

Data Collection and Intervention

The pretest data were collected between January and May using face-to-face interviews during home visits. The visits were planned by telephone calls after the researcher obtained the communication information for the patients who had been referred to the relevant family health center. A brief explanation of the study was given during the phone calls. The data collection forms were completed on average in 25 minutes. The Patient Description Form, Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment, and Hypertension Management Form were administered to the patients. In addition, the patients' blood pressure, height, and weight were measured under appropriate conditions in the family health centers.

Nursing Interventions

An individualized educational method, the most effective among the health education methods, was provided to the experimental group. Home visits enable a more positive communication between the educator and patients, provide on-site observation of the patient's problems, and assist monitoring the improvements during the visits. The literature indicates that direct instruction, question and answer, demonstration and practice, and assigning responsibility are methods that can be used in individualized education.

During the educational program, the researchers used the education presentations prepared based on the Roy Adaptation Model and supported by the Hypertension Management Guide prepared by the researchers referring to the Roy Adaptation Model.

The educational sessions were planned as once weekly for one hour, to be completed in six weeks.

In the first session, four important functional areas of the Roy Adaptation Model and its relationship between hypertension were analyzed in a general way, introducing them to the subject.

In the 2nd session, the parameters related to hypertension in the physiological area were analyzed (such as nutrition, blood pressure, exercise, and BMI). In the 3rd session, the parameters related to hypertension in the self-concept area were analyzed (such as stress, health responsibility, and personal perception). In the 4th session, the parameters related to hypertension in the role-function area were analyzed (such as the issues about roles and social support, teaching patients how to measure their blood pressure, and the importance of regular drug use). In the 5th session, the parameters related to hypertension in the mutual attachment area were analyzed (such as interpersonal relationships). In the 6th session, these subjects were summarized and the points that the patients could not understand or inquired about were reviewed using the question and answer method.

At the end of the educational program, the researcher gave the educational booklet "Hypertension Management Guide" to each patient. This guide supported the educational program and enabled the patients to refresh and enhance their knowledge whenever they felt the need. The guide included the definition, importance, risk factors, and symptoms of hypertension; measuring blood pressure at home; and listed some recommendations about the steps that can be applied in the treatment of hypertension, stress, and social support. It was prepared in a comprehensible language for hypertensive patients with a readable font size.

The post-test data were collected in family health centers two months after the intervention by re-administering the data collection tools and measurements in the pretest to the experimental and control group (Figure 1). No education was provided to the control group; and the educational materials given to the experimental group were also given to the control group after the study was completed.

Data Analysis

The data were analyzed using percentages, means, the chi-square test, dependent samples t-test, and the independent group t-test.

Ethical Considerations

The aim and benefits of the study were explained to the hypertensive patients and asked if they want to participate in this study to ensure their participation was voluntary. In addition, written permission was obtained from the Ethics Committee of Ataturk University, Faculty of Health Sciences.

Results

Of the patients in the experimental group, 76% were female, 74.7% were married, 45.3% were primary school graduates, 72% were housewives, 74.7% had a nuclear family, and 70.7% had an income level adequate to cover their expenses. Their average age was 60.57±9.52 years. Of the patients in the control group, 71.3% were female, 70% were married, 45.2% were primary school graduates, 66.2% were housewives, 71.3% had a nuclear family, and 53.8% had an income level adequate to cover their expenses. Their average age was 60.61±8.91 (Table 1). No significant difference was found between the sociodemographic characteristics of the experimental and control groups (p>0.05).

Of the patients in the experimental group, 86.7% were not smoking. The patients' average duration of treatment was 6.3±4.5 years. Of them, 50.7% had another disease along with hypertension, and 77.3% used their drugs regularly. Of the patients in the control group, 78.7% were not smoking, 60% had another disease than hypertension, and 78.8% used their drugs regularly. The patients' average duration of treatment was 7.6±4.6 years. No significant difference was found between the disease-related characteristics of the patients in the experimental and control groups (p>0.05) (Table 2).

The pretest and post-test mean scores of the experimental group on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment were 59.04±12.4 and 63.78±10.2, respectively, and the difference between them was statistically significant (p<0.001). The pretest and post-test mean scores of the control group on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment were 60.82±10.5 and 63.68±10.2, respectively, and the difference between them was not statistically significant (p>0.05) (Table 3).

The pretest and post-test mean scores of the experimental group on the Hypertension Management Form were 42.84±8.5 and 45.86±9.5, respectively, and the difference between them was statistically significant (p<0.001).

Table 1. Descriptive characteristics of hypertensive patients

Variable	Experimental Group		Control Group		Test and Significance
	N	%	N	%	
Age Average (years)	(60.57±9.52) (min:35-max:87 age)		(60.61±8.91) (min:46-max:85 age)		t:0.026 p= 0.979
Gender					
Female	57	76.0	57	71.3	x^2=0.449
Male	18	24.0	23	28.8	P=0.586
Business					
Housewives	54	72.0	53	66.2	
Officer	8	10.7	11	13.8	x^2=2.658
Worker	5	6.7	4	5.0	P=0.617
Retired	8	10.7	12	15.0	
Education					
Literate	25	33.3	20	25.0	x^2=3.263
Primary school	34	45.3	34	42.5	p=0.353
High school	5	6.7	11	13.8	
University	11	14.7	15	18.8	
Income Level					
Low income level	8	10.7	11	13.8	
Medium income level	53	70.7	43	53.8	x^2=4.959
High income level	14	18.7	26	32.4	p=0.084
Marital Status					
Married	56	74.7	56	70.0	x^2=1.073
Single	19	25.3	24	30.0	p=0.585
Family Type					
Nuclear family	56	74.7	57	71.3	x^2=0.229
Extended family	19	25.3	23	28.7	p=0.719
Total	75	100	80	100	

Table 2. Disease-related characteristics of hypertensive patients

Variable	Experimental Group		Control Group		Test and Significance
	N	%	N	%	
Average Duration Of Treatment	6.3±4.5		7.6±4.6		t: 1.844 p=0.067
Smoking					
Yes	10	13.3	17	21.3	x^2=1.687
No	65	86.7	63	78.7	p=0.211
Another Disease					
Yes	38	50.7	48	60.0	x^2=1.365
No	37	49.3	32	40.0	p=0.261
Regularly Drugs					
Yes	58	77.3	63	78.8	x^2=0.045
No	17	22.7	17	21.2	p=0.848
Total	75	100	80	100	

Table 3. Comparison of the pretest and posttest mean scores on the self-efficacy scale for adherence/adaptation to medical treatment

Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment	Pretest $\overline{x}$ ±SD	Post-test $\overline{x}$ ±SD	Test value
Experimental Group	59.04±12.4	63.78±10.2	t: 4.457 p<0.001
Control Group	60.82±10.5	63.68±10.2	t:1.911 p=0.060

Table 4. Comparison of the pretest and posttest mean scores on the hypertension management form and the pretest and posttest blood pressure values

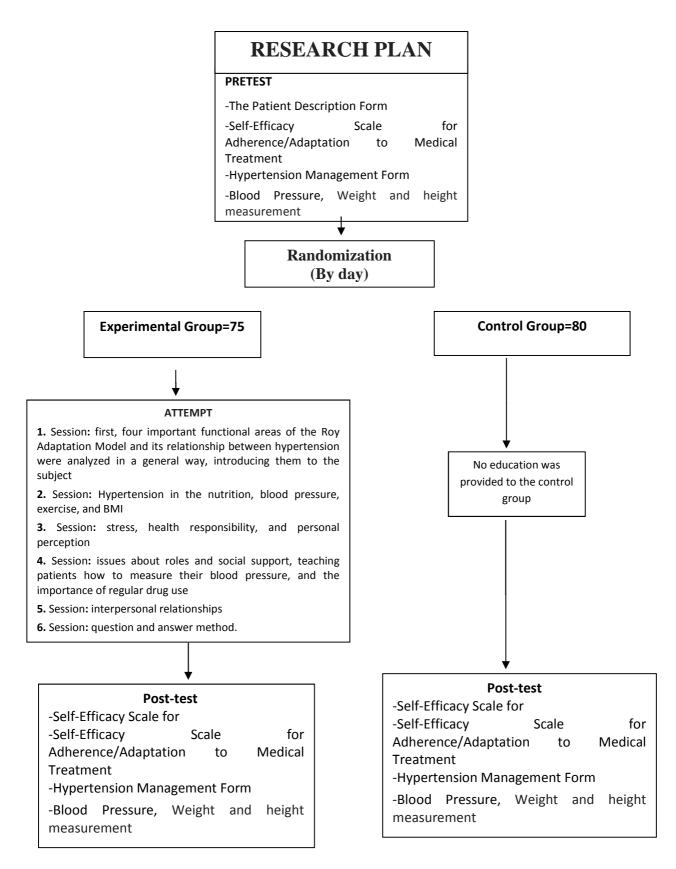|		Pretest $\overline{x}$ ±SD	Post-test $\overline{x}$ ±SD	Test value
Hypertension Management	Experimental Group	42.84±8.5	45.86±9.5	t:4.457 p<0.001
	Control Group	40.13±1.0	40.04±0.2	t:0.630 p=0.530
Blood Pressure	Experimental Group	149.40±25.85	139.80±17.39	t:3.916 p<0.001
	Control Group	141.57±24.57	137.22±16.97	t: 1.272 p=0.088

Table 5. Comparison of the pretest and post-test mean scores on the self-efficacy scale for adherence/adaptation to medical treatment and on the hypertension management form, as well as the pretest and post-test blood pressure values

	Experimental Group Post-test $\overline{x}$ ±SD	Control Group Post-test $\overline{x}$ ±SD	Test value
Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment	63.78±10.2	63.68±10.2	t: 1.011 p: 0.314
Hypertension Management	45.86±9.5	40.04±0.2	t: 2.831 p<0.001
Blood Pressure	139.80±17.39	137.22±16.97	t: 1.933 p<0.05

The pretest and post-test mean scores of the control group on the Hypertension Management Form were 40.13±1.0 and 40.04±0.2, respectively, and the difference between them was not statistically significant (p>0.05). The pretest and posttest mean blood pressure values of the experimental group were 149.40±25.85 and 139.80±17.39, respectively, and the difference between them was statistically significant (p<0.001). The pretest and post-test mean blood pressure values of the control group were 141.57±24.57 and 137.22±16.97, respectively, and the difference between them was not statistically significant (p>0.05) (Table 4).

The posttest mean scores on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment of the experimental and control groups were 63.78±10.2 and 63.68±10.2, respectively, indicating no statistically significant difference (p>0.05).

RESEARCH PLAN

PRETEST

-The Patient Description Form

-Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment

-Hypertension Management Form

-Blood Pressure, Weight and height measurement

↓

Randomization
(By day)

Experimental Group=75

Control Group=80

↓

ATTEMPT

1. Session**:** first, four important functional areas of the Roy Adaptation Model and its relationship between hypertension were analyzed in a general way, introducing them to the subject

2. Session**:** Hypertension in the nutrition, blood pressure, exercise, and BMI

3. Session**:** stress, health responsibility, and personal perception

4. Session**:** issues about roles and social support, teaching patients how to measure their blood pressure, and the importance of regular drug use

5. Session**:** interpersonal relationships

6. Session**:** question and answer method.

No education was provided to the control group

↓

Post-test

-Self-Efficacy Scale for
-Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment
-Hypertension Management Form

-Blood Pressure, Weight and height measurement

Post-test

-Self-Efficacy Scale for
-Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment
-Hypertension Management Form

-Blood Pressure, Weight and height measurement

Figure 1: Research Plan

The post-test mean scores on the Hypertension Management Form of the experimental and control groups were 45.86±9.5 and 40.04±0.2, respectively, indicating a statistically significant difference. (p<0.001). The post-test mean blood pressure values of the experimental and control groups were 139.80±17.39 and 137.22±16.97, respectively, indicating a statistically significant difference (p<0.05). (Table 5).

Discussion

Hypertension is a serious and important determinant of the coronary diseases which is observed frequently in adult populations, cause labor loss or disability, and impose an economic burden (Tokem, Tasci, & Yilmaz, 2013). Although hypertension has effectively been treated for about 50 years, control and awareness of hypertension is still under the targeted levels (www.healthypeople.gov). To maintain control of the blood pressure levels of hypertensive patients in the entire community, fat consumption should be reduced, the number of patients who use their drugs regularly should be increased, sodium intake should be reduced, physical activities should be increased, weight should be controlled through the proper BMI range, and alcohol consumption should be reduced (www.healthypeople.gov).

In the present study, a majority (76%) of the patients diagnosed with hypertension were female. Altun et al. (2005) found the prevalence of hypertension to be higher in females (36.1%) than in males (27.5%) in their Turkish hypertension prevalence study. Efe, Kilic –Akca, Kiper, Aydin, & Gumus (2012) also reported that 77.9% of the patients diagnosed with hypertension were female, and similarly, Gun and Korkmaz (2014) determined that 63.6% of the participants were females. These findings show similarity to the findings of the present study. The reasons for the higher prevalence of hypertension in females are indicated as the reduced estrogen and increased fat distribution in the body resulting from postmenopausal changes, which cause female to become more sensitive to salt (Yurdakul & Aytekin, 2010). The higher number of females in the present study can also be explained by these reasons.

Of the patients in the present study, 74.7% were married, 78.6% were literate or primary school graduates, and 70.7% had an income level adequate to cover their expenses. Gun and Korkmaz (2014) reported that of the patients, 70.9% were married, 64.8% were literate or primary school graduates, 98.8% had social security, and 33.3% were retired. Efe, Kilic – Akca, Kiper, Aydin, and Gumus (2012) reported that of the patients, 76.8% were married, 85.3% were literate, and 75.8% were housewives. Many other studies also proved that personal characteristics such as age, gender, education level, and others. are related to the prevalence of hypertension (Irmak, Duzoz, & Bozyer, 2007; Tasci, Ozturk, & Ozturk, 2005). These findings support the findings of the present study.

Awareness rates of hypertension and the rates of being under regular control and treatment of those who are aware of their disease are generally insufficient in Turkey (Col, Ozdemir, & Ocaktan, 2006). Tokem, Tasci and Yilmaz (2013) indicated that a majority of the patients see a doctor to have more examinations and have the doctors write more prescriptions, and about one-third of them did not know when they should refer to a doctor. The present study also showed that both the experimental and the control groups did not use drugs regularly as was also reported by some previous studies (Gun & Korkmaz, 2014; Tokem, Tasci & Yilmaz, 2013), while others observed a very good adaptation to drug therapy (Vatansever & Unsar, 2014; Irmak, Duzoz, & Bozyer, 2007; Kyngas & Lahdenpera, 1999). Kyngas and Lahdenpera (1999) indicated that the patients receiving drug therapy did not consider it necessary to change their lifestyles.

Some findings in the literature parallel with the findings of the present study, whereas some others differ. In the present study, not using drugs regularly may be attributed to the low level of awareness of hypertension.

In this study, the mean scores of the experimental group on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment was found to increase after the educational program (p<0.001) (Table 3).

Bell and Kravitz reported that counselor education provided by doctors is important to develop adaptation to drug therapy and a health-promoting lifestyle (Bell & Kravitz, 2008). In a study conducted with nurses and hypertensive patients, the patients were reported to adopt a more health-promoting lifestyle and show a better adaptation to their treatment after the educational programs were provided to reduce

the risk factors for hypertension and increase the adaptation to treatment (Aminoff, & Kjellgren, 2001). In another study, all the patients were reported to use their drugs at the recommended dose and frequency after the education provided by nurses (Irmak, Duzoz, & Bozyer, 2007).

An experimental study with a control group conducted by nurse researchers indicated that the experimental group showed an increased adaptation to their treatment after the educational program and home visits to increase adaptation to drug therapy and a health-promoting lifestyle, whereas no significant change was observed in the control group (Hacihasanoglu & Gozum, 2011).

A successful hypertension management is possible when patients control and track their blood pressure, and implement the recommended lifestyle changes throughout their lives (Tokem, Tasci & Yilmaz, 2013). The main aim of controlling blood pressure is to take the risk factors and health problems such as obesity, excessive alcohol consumption, smoking, sedentary lifestyle, unhealthy diet, and stress that can cause chronic health problems in the future, to reduce the number and dose of antihypertensive drugs that can be used in the future, and thereby to increase individuals' quality of life (National Committee Report, 2003; Hilland & Miller, 2004).

The present study showed that the hypertension management scores of the experimental group increased while their blood pressure had decreased after the educational program, and that the difference between the groups was statistically significant (p<0.05), (Table 4 and 5). This finding shows similarity with the findings of many other studies.

Oakeshott, Krry, Austin and Cappuccio (2003) conducted an invasive study to reduce blood pressure and found a reduction on patients' blood pressure after their intervention. Hacihasanoglu and Gozum (2011) conducted an experimental study with a control group and observed significant reductions in the blood pressure of the patients in the experimental group after the educational program and home visits. In addition, many other studies reported significant reductions in hypertensive patients' blood pressure after the educational programs provided to them by nurses (Lee et al, 2010; Ulm et al,

2010; Blumenthal et al, 2000; Erci et al, 2001; Brennan et al, 2010).

Pala, Gercek and Turkkan (2015) indicated that home visits by midwives and nurses positively affected the control of hypertension. Another study reported that positive changes were observed in patients' health-promoting lifestyles after the educational program provided by nurses to improve hypertensive patients' health-promoting lifestyle (Irmak, Duzoz, & Bozyer, 2007).

The present study also indicated an increase in the mean score of the control group on the Self-Efficacy Scale for Adherence/Adaptation to Medical Treatment, even if not significant (Table 5). This shows that the patients were affected by the pretest-post-test, blood pressure measurement, and height and weight measurements, and that these practices raised their awareness.

Nurses, a significant part of healthcare team, have an important role in controlling hypertension. Educational and counseling services provided by nurses and healthcare personnel ensure hypertensive patients' adaptation to drug therapy, improve their health-promoting lifestyle, reduce their blood pressure, and affect positively their disease management.

Limitations of the study

It is a limitation that this study was conducted on patients with hypertension who applied to the health center between certain dates.

Conclusion

This study showed that educational programs provided to hypertensive patients have positive effects on hypertension management, and made positive contributions to patients' health-promoting lifestyles, and to the reduction of their blood pressure.

Based on these results, nurses should allocate more time to educate their patients on hypertension management and also convey their educational program to the entire society using written and visual materials. As shown by the results of this study and many other studies, nurses play a very important role in hypertension management. It can be recommended that the educational programs be provided based on the Roy Adaptation Model for successful management of hypertension; that patients'

awareness of hypertension be increased and their health-promoting lifestyle be improved and maintained; that educational programs be prepared to ensure patients' adaptation to the disease and treatment; and that nurses be active and provide guidance to the healthcare team.

References

Korkmaz F. (2011) Profession and nursing in our country. Hacettepe University Health Sciences Faculty Nursing Journal; 59-67.

Kaya N, Babadag K, Yesiltepe-Kacar G, Uygur E. (2010) Nursing model / theories of nurses, nursing process and classification systems and their applications. Maltepe University Nursing Science and Art Journal: 3(3): 24-33.

Kaya N. Life model. In: Babadag K, Asti T, editors. (2008) Guidelines for the Application of Nursing Principles. Istanbul Medical Publishing, İstanbul; 1-8.

Kacaroglu Vicdan A, Gulseven Karabacak B. (2014) The use of patient education Roy Adaptation Model haemodialysis. Journal of Human Sciences; 11(2): 209-220.

Kacaroglu Vicdan A. (2010) An example to the use of model in nursing care the examination of a woman, with modified radical mastectomy according to the roy adaptation model. Maltepe University Journal of Nursing Science and Art;2(3): 106-118.

Ozkaraman A, Ozer S, Balci Alpaslan G. (2012) Use of roy adaptation model in nursing care of a case with rheumatoid arthritis. Gumushane University Journal of Health Sciences; 1(3): 138-152.

Ursavas FE, Karayurt O, Iseri O. (2014). Nursing approach based on Roy adaptation model in a patient undergoing breast conserving surgery for breast cancer. Journal of Breast Health; 10: 134-140.

Oliveria SA, Chen RS, McCarthy BD, Davis CC, Pharma D, Hill MN. (2005) Hypertension knowledge, awareness, andattitudes in a hypertensivepopulation. J Gen Intern Med; 20: 219-225.

Aminoff UB, Kjellgren KI. (2001). Thenurse-a resource in hypertensioncare. J Adv Nurs; 35(4): 582-589.

Hill MN, Miller NH. (2004). Complianceto antihypertensive treatment. In: Izzo JL, Black HR, editors, Kazanci G, tranlsation ed. Primary Hypertension, 3rd Edition, İstanbul: Nobel Publication;.390-393.

Bacon, SL, Sherwood A, Hinderliter A, Blumental JA. (2004). Effects of exercise, diet and weight loss on high blood pressure. Sports Med; 34:307-316.

Svetkey LP, Simons Morton DG, Proschan MA, Sacks FM, Conlin PR, Harsha D, Moore TJ. (2004). Effect of the dietary approachesto stop hypertension diet and reduced sodium intake on blood pressure control. J Clın Hypertens; 6:373-381.

Col M, Ozdemir O, Ocaktan ME. (2006). Treatment-control status and behavioral factors in hypertensives over age 35 in the park health center district. Ankara University Medical Faculty Journal; 59: 144-150.

Gocer O. (2008). It prevents the patients from meeting the chronic illness. Ph.D Gulhane Askeri Medical Academy Nursing High School, Ankara,.

Klootwyk JM, Sanoski CA, Pharm D. (2008). Medication Adherence and Persistence in Hypertension Management. Journal of Clinical Outcomes Management; 18(8): 351-358.

Serumaga B, Ross-Degnan D, Avery AJ, Elliott RA, Majumdar SR, Zhang F, Soumerai SB. (2011). Effect of pay forperformance on the management and outcomes of hypertension in the United Kingdom: interrupted time series study. Brıt Med J; 25:342.

Ogedegbe G, Mancuso CA, Allegrante JP, Charlson ME. (2003). Development and evaluation of a medication adherence self-efficacy scale in hypertensive African-American patients. J Clın Epıdemıol; 56(6): 520-529.

Gozum S, Hacihasanoglu R. (2009). Reliability and validity of the Turkish adaptation of medication adherence self-efficacy scale in hypertensive patients. European Journal of Cardiovascular Nursing; 8: 129-136.

Tokem Y, Tasci E, Yılmaz M. (2013). Investigation of home disease management of individuals with hypertension. Turkish Journal of Cardiovascular Nursing; 4(5): 30-40.

Altun B, Arici M, Nergizoglu G, Derici U, Karatan O, Turgan C, Caglar S. (2005). Prevalence, Awareness, Treatment and Control of Hypertension in Turkey (The Patent Study) in 2003. J Hypertens; 23(10): 1817-23.

Efe D, Kilic Akca N, Kiper S, Aydin G, Gumus K. (2012). Supportive methods used by individuals with hypertension to lower blood pressur. Spatula DD; 2(4): 207-212.

Gun Y, Korkmaz M. (2014). Treatment compliance and quality of life of hypertensive patients, Dokuz Eylul Universitesi Hemsirelik Fakultesi Elektronik Dergisi; 7(2): 98-108.

Yurdakul S, Aytekin S. (2010). Hypertension in women. Archives of the Turkish Society of Cardiology; 38 (1): 25-31.

Irmak Z, Duzoz GT, Bozyer I. (2007). Effect of an education programme on the lifestyle change and compliance to drug therapy of hypertensive

patients. Journal of Hacettepe University School of Nursing; 14(2): 39-47.

Tasci S, Ozturk A, Ozturk Y. (2005). Hisarcık Ahmet Karamanci health center prevalence of hypertension in the population over 30 years and affecting factors in Kıranardı region. Journal of Health Sciences; 14: 59-65 (Nursing Special Issue).

Vatansever O, Unsar S. (2014). Determination Of Medical Treatment Adherence, Self-Efficacy Levels Of Patients With Essential Hypertension And Affecting Factors. Turk Soc Cardiol Turkish Journal of Cardiovascular Nursing; 5(8): 61-67.

Kyngas H, Lahdenpera T. Compliance of patients with hypertension and associated factors. J Adv Nurs 1999; 29(4): 832-839.

Bell RA, Kravitz RL. (2008). Physician Counseling for Hypertension: What Do Doctors Really Do? Patıent Educ Couns; (72): 115-121.

Hacihasanoglu R, Gozum S. (2011). The effect of patient education and home monitoring on medication compliance, hypertension management, healthy lifestyle behaviours and BMI in a primary health care setting. J Clın Nurs, 20, 692-705.

Oakeshott P, Kerry S, Austin A, Cappuccio F. (2003). Is there a role for nurse led blood pressure management in primary care. Fam Pract; 20(4): 469-473.

Lee JE, Han HR, Song H, Kim J, Kim KB, Ryu JP, Kim MT. (2010). Correlates of self-care behaviors for managing hypertension among Korean Americans: A questionnaire survey. Int J Nurs Stud; 47(4): 411-417.

Ulm KK, Huntgeburth UU, Gnahn HH, Briesenick CC, Purner KK, Middeke MM. (2010). Effect of an intensive nurse-managed medical care programme on ambulatory blood pressure in hypertensive patients. Archives of Cardiovascular Diseases; 103(3): 142-149.

Erci B, Sayan A, Tortumluoglu G, Kilic D, Sahin O, Gungormus Z. (2003). The effectiveness of Watson's Caring Model on the quality of life and blood pressure of patients with hypertension. J Adv Nurs; 41(2): 130-139.

Pala K, Gercek H, Turkkan A. (2015). The effects of housevisits on hypertension control in the elderly: A study from Bursa, Turkey. Turkish Journal of Geriatrics; 18(1): 22-29.