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The Effectiveness of Self-care Educational Package on Hypertensive Patients of Khatamolanbia Hospital in Iranshahr in 2015

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Abstract

Aim: The aim of this study was to determine the effectiveness of a self-care educational package on patients suffering from hypertension in Khatamolanbia Hospital of Iranshahr. Self-care includes a set of healthy behaviors as well as the choice of correct lifestyle, which will prevent from disease and result in effective treatment in case of disease through proper knowledge. Since hypertension is one of the most important modifiable factors by self-care, prevention and treatment of this disease should be considered by the authorities.

Method: A self-care educational package was used within six months to assess its impact on hypertensive patients using a researcher-made questionnaire. The target population included 50 mainly female hypertensive patients admitted to Khatamolanbia Hospital of Iranshahr in 2015 who were studied in pre-test post-test groups. The data were analyzed using the SPSS software (version 16).

Findings: It was indicated that the self-care education program had a significant impact on the participants' knowledge, attitudes, health behaviors and blood pressure control ($p<0.05$) so that effective reduction in mean blood pressure from 150.90 to 130.80 was observed.

Conclusion: The results of this study showed that the self-care program could be used as an effective approach to practically reduce and control blood pressure.

Keywords: Educational Package, Self-care, Hypertension, Knowledge, Attitude, Behavior

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Introduction

Hypertension is one of the most important risk factors for cardiovascular diseases (CVDs) and the most common cause of heart failure, stroke and renal failure in several countries. Economic and industrial advances as well as expanding communications have caused changes in lifestyle, including smoking, physical inactivity and unhealthy diet, which have increased the incidence of CVDs. Every year, nearly 32 million cases of heart attack and stroke are reported in the world, leading to the death of 17 million people with an upward trend in the developing countries [1]. Careless consumption of lipids is an underlying cause of heart, liver and kidney diseases as well as diabetes and obesity; on the other hand, protective consumption of fruits and vegetables has been decreased. Approximately 20 out of 64 million death cases in 2015 were attributed to CVDs, which are a major public health problem in 20% of the world adult population. CVDs and their associated complications have a significant impact on patients, and can lead to death or permanent disability if not properly managed. Lack of symptoms is a feature of hypertension, which decreases the probability of early diagnosis. A significant number of people with hypertension are unaware of their disease, and even in the case of awareness, their treatment is often inadequate and requires taking practical measures [2]. Several studies have also concluded that hypertension often remains undiagnosed and is not properly treated even if diagnosed. This is while self-care education and development of a healthy lifestyle, including a diet low in salt and lipid but high in potassium and rich in fresh vegetables and fruits, exercise and hiking, avoiding smoking and alcohol, and, in brief, a healthier lifestyle can significantly prevent this disease [3]. Nowadays, several health problems (such as obesity, chronic diseases, smoking and physical inactivity) are linked to lifestyle. Self-care is an approach to promote health, prevent and restrict diseases, and maintain well-being [3]. However, frequent specialist visits and the use of antihypertensive drugs are not essentially a guarantee to control hypertension. In fact, drug therapy is not the only option while internal suffering and self-care are more important than drug therapy. Studies have shown that self-care of chronic diseases can significantly decrease the use of healthcare services, resulting in 40% reduction in general practitioner visits, 17% reduced reference to a specialist, 50% reduction in emergency department visits and hospitalization, and 50% reduced visits to healthcare centers [3]. Hypertension is the most hazardous risk factor for stroke, heart

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attack, renal failure and blindness. On the other hand, depression, anxiety and stress, lack of proper diet, smoking and, in general, non-compliance with a healthy lifestyle predispose the individual to hypertension, which is a common disease and an important cause of morbidity and mortality in Iran [4]. The importance of self-care becomes clear when statistics show that approximately 70% of medical visits are unnecessary, and one third of medical conditions can be treated without visiting the physician, which can save several expenses [3]. World Health Organization (WHO) has stated lifestyle change and regular measurement of blood pressure at the top of its agenda and guidelines to prevent high blood pressure [5]. Self-care is a set of activities and measures taken purposefully and consciously by a person on a voluntary basis in order to maintain, improve and upgrade the health of people and their acquaintance, which is a guarantee for health in the country [6].

According to the Iranian Ministry of Health, 20 out of 100 Iranian adults are affected with hypertension while only 10 individuals are aware of their hypertension, among whom 5 are treated and 75% remain untreated [7]. In case of non-compliance with treatment programs, severe complications, including hypertension recurrence and progression, disability, need of urgent treatment, hospitalization and death may occur. Therefore, new strategies should be developed and implemented due to a number of reasons. Some people do not consume drugs properly and on time, discontinue drug consumption after controlling the blood pressure, experience drug side effects, use the wrong drug, show hypersensitivity, do not visit the physician on time, do not know or forget drug use, do not have access to drug or do not understand drug storage conditions and expiration date, have fear of dependence, show tolerance or drug interactions as well as side effects such as impotency, or believe that they would be addicted to the drug. On the other hand, a significant portion of national capital is devoted to costs associated with treatment of CVDs, including angiography, angioplasty and stroke, which are a function of risk factors like as hypertension, obesity, blood lipid disorders, inactivity, inappropriate nutrition and smoking. As a result, healthcare providers need to increase their awareness and self-care [8]. The promotion of awareness, knowledge and attitude can greatly improve the performance of patients and improve the society level of health behaviors. Since Iranshahr is one of the most deprived areas of the country and no research has been conducted on hypertension in this region, and given the urgent need to educate people in this respect, we decided to design and implement a self-care training

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package to take an effective measure towards reducing the incidence of this disease and promote the general health level in the society.

Method

This pre-test post-test quasi-experiment was conducted on the study group, and was a cross-sectional study with the intervention of the researcher. The researcher intended to use the experimental method but the experimental groups were not estimated due to limitations of the study as well as the number of samples required.

Determining the sample size

In this study, the researcher studied all the patients admitted with medical records in Khatamolanbia Hospital of Iranshahr in a period of six months using the following sampling formula:

$$n = \frac{z^2 pq}{d^2} \times 100$$

The calculated value of p is 0.35, and the researcher estimated pre-post sample size with 95% confidence, accuracy of d=0.3% and 10% likelihood of exclusion as follows [9]:

$$n = \frac{(1.96)^2 \times (0.35 \times 0.65)}{(0.04)^2} = \frac{0/45}{0/0016} \times \frac{10}{100} = 51$$

Inclusion criteria: All the hypertensive patients having medical records, introduced by a physician, taking an antihypertensive drug, aged 18-68 years, having systolic blood pressure over 130 mmHg and diastolic blood pressure over 80 mmHg, visiting for checkup or with associated diseases with full satisfaction and willingness to participate in the study were recruited, and their blood pressure was measured. An educational package suiting their informative needs was prepared, including educational content and a CD with two PowerPoint presentations and two short video clips. Since the patients lived in a deprived region, were mostly illiterate and untrained and spoke with a local accent, a simple and understandable self-made questionnaire with a three-point Likert scale appropriate for deprived regions was read by their attendants or other literate patients and completed. The researcher-made questionnaire was theoretically and practically validated by seven faculty members of health education, and Cronbach's alpha was calculated over 0.8. There were a total of 22 demographic questions, including personal and family information, blood sugar and lipid values, smoking, alcohol use, and current hypertension status, and 10 questions related to health data. A total of 30 awareness-attitude-behavior questions (10 each) with three- item Likert scale including right- I do not know-wrong for

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awareness, I agree-neither agree/nor disagree-disagree for attitude and always-sometimes-never for behavior were posed with a maximum score of 3 and minimum of 1, which included a total of 52 questions. In this study, the ethical code adopted by the National Committee was taken into consideration, and hypertension was measured in two stages in accordance with the JNC7 principles based on diagnostic criteria. In the first step, after obtaining informed consent and explaining the research purpose and approach, the educational content summary prepared in seven parts was individually instructed and the implementation of educational package was subsequently encouraged. In the second step, the effectiveness of educational intervention was evaluated in the study group after three months. Blood pressure was measured and BMI was determined. The data collected by the researcher from pre-test and post-test were encoded and analyzed using the SPSS software (version 16). Descriptive and inferential statistics (frequency means and standard deviation) were used to analyze the data but descriptive statistics were used for demographic and health data analysis. The t-test was shown in a tabular form. Pearson's Chi-squared test was used to determine significant differences. The classified variables were analyzed using Chi-square test, and multiple linear regression was employed to determine the influence of interfering factors on health literacy, including duration of hypertension. The data from this step were analyzed using descriptive tests and paired t-test, including central tendency and dispersion indices, as well as parametric and non-parametric statistical tests. Independent and paired t-test were applied to determine the difference between the groups and their scores before and after intervention, respectively. Correlation test and matching were used to determine relationships and eliminate the confounding variables, respectively.

Limitations

Lack of health literacy, time and space restrictions, low sample size, absence of computer, local accent of the participants, severe financial barriers, ignorance of blood pressure control, associated diseases, malabsorption, and drug interference.

Results

In the descriptive part of this study, 18% of the subjects were male and 82% were female. In addition, 78% had elementary and lower education, 14% guidance school, 2% secondary and 6% associate diploma and higher. In terms of marital status, 2% of the subjects were single, 13% had deceased spouse, 2% had divorced spouse and 80% were married. Insurance status of the study subjects

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showed that 30% had health and armed forces insurance, 38% social security insurance, 30% rural insurance and 2% were uninsured. 2%, 2%, 20%, 38% and 38% of the subjects were aged 18-28, 29-38, 39-48, 49-59 and 59-68 years, respectively.

Table 1: Demographic indicators

Variables		Number	Percent	Significance level
Gender	Man	9	18	Level of significance (<0.05)
	Female	41	82	
Education	Primary school and lower	39	78	Level of significance (P = 0.031 <0.05)
	Guidance school	7	14	
	Secondary education	1	2	
	High school diploma	0	0	
	Associate diploma and higher	3	6	
Marital status	Not married	1	2	Level of significance (P = 0.001 <0.05)
	Married	40	80	
	Deceased spouse	8	16	
	Divorced spouse	1	2	
Insurance status	Health services and the Armed forces	15	30	Level of significance (P = 0.028 <0.05)
	Social security	19	38	
	Rural	15	30	
	Uninsured	1	2	
Age	18 to 28 years	1	2	Level of significance (P = 0.000 <0.05)
	29 to 38 years	1	2	
	39 to 48 years	10	20	
	49 to 58 years	19	38	
	59 to 68 years	19	38	
Job	Unemployed	1	2	P = 0.012 <0.05
	Housekeeper	36	72	
	Employee	8	16	
	Freelance	3	6	
	Other	2	4	
Previous visits history	Hospitalization	21	42	P = 0.010 <0.05
	Under supervision	17	34	
	Outpatient	2	4	
	First visit	8	16	
	Other	2	4	
	Between 157 to 162	16	32	
Income level	Very low	13	26	P = 0.000 <0.05
	Low	17	34	
	Average	19	38	
	Good	1	2	
	Excellent	0	0	
Residence	Village	20	40	P = 0.000 <0.05
	Bakhsh	0	0	
	Outskirts	2	4	
	Downtown	28	56	
Smoking	Yes	15	30	P = 0.007 <0.05
	No	35	70	
Alcoholic drinks	Yes	0	0	P = 0.001 <0.05
	No	50	100	

As Table 1 shows, 87.8% of women were housewives and only 1% of men were unemployed. The majority of subjects (76%) had a history of hospitalization and

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supervision. 60% were very low and low in terms of income and only 2% had good income. Most of the subjects were urban dwellers. 30% were smokers and none of them consumed alcohol. 52% had obtained information about hypertension through IRIB.

Table 2: Distribution of Body Mass Index (BMI) by sex among the study subjects

BMI Variable	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Thin (lower than 18.5)	-	-	2	4.9	2	4
Normal (5.9-18.24)	5	55.6	16	39	21	42
Overweight (25-30)	1	11.1	11	26.8	12	24
Obese (over 30)	3	33.3	12	29.3	15	30
Total	9	18	41	82	50	100

The results given in the above table show that 54% of the subjects are overweight and obese.

Table 3: Correlation between some dependent variables with demographic variables among the subjects

Underlying variable	Dependent variable		
	High blood lipids	High blood sugar	High blood pressure
Age	0.002	0.004	0.150
Weight	0.270	0.849	0.998
Education	0.001	0.030	0.668
Job	0.314	0.868	0.969
Marital status	0.971	0.935	0.510
Residence	0.430	0.210	0.773
Income	0.655	0.915	0.300
Smoking	0.484	0.506	0.159
Family history	0.021	0.256	0.065

As shown in Table 3, the correlation between underlying variables and dependent variables indicates a significant difference between age and education with high blood lipid and sugar ($P<0.05$). A significant relationship was observed between family history and high blood lipid level ($P<0.05$). There was no significant relationship between the demographic variables and dependent variables.

Table 4: Comparison of the mean and standard deviation (M±SD) of systolic blood pressure before and after intervention in the study subjects (P-value < 0.05)

Variable	Before intervention	After intervention	Average difference (SD)	P-value
	Average (SD)	Average (SD)		
Systolic blood pressure	152 (13.1)	127.93 (10.71)	24.45 (15.74)	<0.001
Diastolic blood pressure	89.34 (10.52)	78.47 (6.31)	1.08 (9.56)	0.002

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The results given in Table 4 show that the M±SD of systolic and diastolic blood pressure of the subjects before intervention was 150 and 90, respectively. The difference in mean systolic and diastolic blood pressure before and after intervention was statistically significant (p<0.001 and p=0.002, respectively).

Table 5: Mean±SD of awareness, attitude and performance before and after intervention among the study subjects

Variable	Before intervention	After intervention	Average difference (SD)	P-value
	Average (SD)	Average (SD)		
Awareness	22.36 (4.69)	28.73 (1.67)	6.36 (4.86)	<0.001
Attitude	22.36 (4.69)	28.86 (1.98)	6.50 (4.78)	<0.001
Operation	19.71 (2.78)	26.69 (2.26)	6.97 (3.13)	<0.001

P-value < 0.05

According to Table 5, difference between the M±SD of awareness, attitude and performance before and after intervention was statistically significant (P<0.001). The mean score range of awareness, attitude and behavior was considered 10-30. Minimum and maximum scores were 10 and 30, respectively.

Discussion and Conclusion

In a paper titled "The prevalence of self-care activities among African Americans" conducted from 2008 to 2010 in Charlotte, North Carolina using H scale (level of self-care activities with hypertension) to control hypertension, it was found that self-efficacy to control hypertension is associated with self-care; therefore, health care providers must act to increase the awareness of patients, which is as an important first step in treatment. African-Americans required essential means such as counseling and a high level of encouragement to take self-care measures [10]. In the study of John Warren et al. in 2012 among 190 African-Americans in Charlotte metropolitan area entitled "The prevalence of self-care activities among African-Americans", it was concluded that blood pressure can be controlled, and self-care is an important factor in controlling blood pressure. Therefore, healthcare providers should evaluate people in terms of self-care activities and direct them towards practical techniques to help promote self-confidence in order to control blood pressure. Nevertheless, African-Americans still face challenges related to self-care such as weight control and reduced salt intake, which demand a new survey tool to assess self-care activities for hypertensive patients in need of counseling and encouragement [11]. Despite the availability of more than one hundred drug types for

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hypertension with proven efficacy, the reported levels of blood pressure control in America (27%) have been disappointing, which even showed lower levels in England, France and Germany [12].

Overall, the findings of our study showed that self-care-based educational intervention is effective in reducing and controlling the hypertension. Since this study assumed four hypotheses, the summary of research for each hypothesis is presented as follows:

First hypothesis: Self-care education is effective upon the awareness of hypertensive patients. Average awareness scores were significantly increased after the educational intervention, and a significant difference was observed relative to that before intervention, which reflects the impact of educational intervention. These findings are consistent with the study of increased awareness of students based on BASNEF model in relation to social skills by Kargar [13], Hazavehei [14] and Taghdisi [15].

Second hypothesis: Self-control education is effective upon the attitude of hypertensive patients. The results indicated that the educational intervention has a positive impact on the attitude of hypertensive patients for self-control of blood pressure. Significant increase in the mean score of attitude in the study group after educational intervention indicates the efficacy of intervention according to BASNEF model on the attitude scope of patients relative to self-care behaviors of hypertension. The results of this study are consistent with those of Baghiani Moghaddam with respect to increased score of self-monitoring activities of hypertensive patients according to BASNEF model [16], and the study of Taghdisi concerning assessment of the efficacy of BASNEF model on promoting the health status of cancer patients [15].

Third hypothesis: Self-care education improves the health behaviors of hypertensive patients. The results showed that the educational intervention has significantly affected self-care behaviors in controlling blood pressure. It seems that health behaviors play an important role in changing the attitude, awareness and behavior of individuals. This finding is consistent with the study of Baghiani Moghadam [16] and Hazavehei [14] who showed that, in the intervention group, the average scores of behaviors such as hiking, exercise, proper diet and regular drug use were significantly increased following the intervention. The results of Mohebi's study [18] also reinforce the results of this study.

Fourth hypothesis: Self-care education is effective upon blood pressure control. The effect of self-care education on the knowledge, awareness and performance of hypertensive patients was confirmed. According to our results, the fourth hypothesis of research based

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on correlation between self-care education and control of blood pressure in hypertensive patients is confirmed given the correlation coefficient of 0.788 in the significance level of 0.05, which is consistent with the study of Ezzati [19] and Chodosh [20].

The results showed that the formulation and implementation of theory-centered educational programs that are selected based on environmental factors is more efficient than common educational programs aiming only at awareness, attitude and behavior of patients without regard to factors affecting individual behavior. The results once again emphasized the multi-faceted nature of health promotion, and showed that blood pressure control programs require constant adherence to drug regimens, diets and control of individual behavior. According to our results, self-care programs should be implemented as an effective method and prototype to reduce blood pressure and control hypertension in the healthcare system.

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