Evaluation the Drug Regime Adherence Based on the Extended Parallel Process Model in Patients with Hypertension Referred to the Hospitals Affiliated to Islamic Azad University, Branch of Tehran Medical Sciences in 2016

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ABSTRACT

The goal of this study is to investigate the way of adherence to drug regime based on extended parallel process model in patients with hypertension referred to hospitals affiliated with the Islamic Azad University of medical sciences branch. This study was the kind of descriptive and correlational study that was conducted in medical clinics of heart of hospitals affiliated with the Medical Azad University of medical sciences branch of Tehran. In this study, participants were all patients with hypertension of 140.90 and higher that at least 6 months has passed of their disease duration of hypertension and they were treated with blood pressure medicines, and reffer to clinic of hospitals affiliated with Islamic Azad University of Tehran Medical Branch in order to control and track their blood pressure. Data were collected by using standard questionnaires. The frequency distribution of patients with hypertension to questions for fear of disease showed that 56.6 percent of agree opinion forms the highest rate. Also the average of total questions related to the fear structure was 16.3 with a standard deviation of 3.11. Frequency distribution in terms of answer to the questions of perceived susceptibility showed that 64.2 percent of agrees opinion contains the highest rate. Average number of total questions related to perceived susceptibility was also 17.22 with a standard deviation of 4.72. Fear of disease, perceived susceptibility toward disease plays a significant relationship with adherence to drug orders in patients with blood pressure. Adherence to incidence of hypertension, blood pressure control has great importance to make minimum the chance of incidence the complications due to high blood pressure.

Keywords: Extended parallel process model, Drug regime, Hypertension
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INTRODUCTION

Hypertension is one of the most common chronic diseases and it is one health and care problem due to its high prevalence and association with cardiovascular disease in industrialized and developing countries. Twenty five percent of adults and 60% of people over 60 years old are developed to the hypertension in industrialized countries (1).

Hypertension is among non-communicable diseases in the Middle East, that its prevalence has increased significantly in recent years .Conducted studies in Iran also indicate the prevalence of hypertension (2, 3).

A major concern in patients with hypertension is adherence to treatment programs and these patients in the case of not adherence to treatment programs will have dire consequences, including disease recurrence, progression of disability, the need for immediate treatments and hospitalization. Many obstacles, including the length of drug use, inability to buy drugs and side effects of goal of drugs have been mentioned as important factors for non-adherence to drug regime.

So the statistics indicate that 40% of them are poor adherence to drug regime in order to control blood pressure (2, 4,

5). Researchers have tried to design the models based on ethology of patient for correct following of patients the drug prescriptions. They have tried to identify the obstacles in the way of non adherence the drug prescriptions and present its correct solutions by finding the factors influencing this process. Extended parallel process model is combination of models or theories arousing the fear (theories of stimulation, parallel process model and the model of value of subjective expections) (4). Based on the model of developed parallel process, if people believe that extremely are prone to disease or exposure to health risk, More will be stimulated to counter that threat, and then evaluate the effectiveness of solutions begins. In fact, fear of threat causes that people adopt strategies to deal with health risk. In case of realizing the threat assessment and then evaluate the effectiveness of strategies, the possibility of changing the attitude, behavior intension and behavior will be more.

One advantage of the extented parallel process model than another models of health education is that mentioned model has been created based on the fear motivation theories so It can play more effective role in prevent and control many high-risk behaviors before they exposure with a risk factor or after being encountered with that factor (5, 6).

With regard to this that setting the hypertension can reduce the risk of incidence the coronary artery disease and reduce stroke and heart failure. And hypertension is prevalent in our country and its complications can be seen in abundance, the goal of this study is to investigate the way of adherence to drug regime based on extended parallel process model in patients with hypertension referred to hospitals affiliated with the Islamic Azad University of medical sciences branch.

MATERIALS AND METHODS

This study was the kind of descriptive and correlational study that was conducted in medical clinics of heart of hospitals affiliated with the Medical Azad University of medical sciences branch of Tehran.

In this study, participants were all patients with hypertension of 140.90 and higher that at least 6 months has passed of their disease duration of hypertension and they were treated with blood pressure medicines, and reffer to clinic of hospitals affiliated with Islamic Azad University of Tehran Medical Branch in order to control and track their blood pressure. Data were collected by using standard questionnaires. Participants were determined by using continuous sampling method of individuals eligible for the study. Inclusion criteria include based on the documents of patients' medical file in cardiology clinic; patient does not develope to the other chronic diseases (diabetes, renal failure, etc.). Patient be mighty in communicating (mentally and in terms of the kind of language and dialect. Patient has the minimum literacy to write and read.And he/she be willing to participate in the research. Exclusion criteria include lack of desire to continue the cooperation in the research at any time after the start the study and sudden created changes during the study that lead to the patient's inability to continue the study.

Data consists of three parts by using the questionnaire: Demographic information, a questionnaire was made in accordance with the extended parallel process model were in the first part of questionnaire that it was developed by using the sample of questionnaires of Witt et al. (1995) and with regard to the studied subject contain structures of extended parallel process model, fear, perceived susceptibility, perceived severity, efficacy of perceived response and perceived self-efficacy.

And it was set based on the Likert five degree scale from totally agree to totally disagree. First five answers are scored for each variable as follows.

 I totally agree (4). Agree (3 points). I have no Idea (0 score). Disagree (2 points) totally disagree (1 point).

Responsive score was measured by collecting its scores that the sum of scores is answers that were given to each components of questions questions and answers that we addressed to two parts of fear and sensitivity in this study.

The content validity method was used in order to scientific credibility of questionnaire In this survey, in this way that the content was validated by 10 professors at the School of Nursing and Midwifery of Azad University of Medicine, Tehran Branch, Faculty of Health of Tehran Medical Sciences University and School of Nursing and Midwifery of University of Medical Sciences of Tehran, and also retest method was used in order to determine the scientific reliability.

The sampling was done among patients with hypertension refferred to these centers after achieving written consent from the School of Nursing, Islamic Azad University, and Tehran Medical Branch.

The confidentiality of data was assured after achieving the approval of surveyed samples and explaining the purpose of research to them. Questionnaire was given them and they filled out the questionnaire.

Information was analyzed by using spss software after collecting the data.

Descriptive and inferential statistics were used in analyzing the data .T-test was used in order to determine the relationship between the rate of following and components of extended parallel process model.

RESULTS

Demographic specifications of developed patients can be seen in Table 1. The most frequency was in people over the age of 60 years in terms of age group (29.5%).

The highest frequency was in the group above 10 year in terms of disease duration (48.7%).

Table 1. Distribution the demographic indicators of studied people

		Frequency	Percentage
Ages in terms of year	39 to 30	16	8.3
	49 to 40	27	19.2
	59 to 50	57	29.5
	60 and higher	83	43
The disease duration in terms of year	1 to 5	39	20.2
	6 to 9	60	31.1
	10 and higher	94	48.7
Gender	Female	71	36.8
	Male	122	63.2
marital status	Single	42	21.8
	Married	151	78.2
Education	Illiterate/ Elementary	19	9.8
	Under Diploma	60	31.1
	Diploma	83	43.00
	Academic	31	16.1
History of hypertension in family	Yes	104	53.9

Table 2 shows frequency distribution of patients with hypertension in terms of answering the questions of fear of the disease.

As it is specified the question of percentages obtained by combining the question "do not use drugs on time certainly causes to be slow the recovery of disease or not to be treated 'with 56.6.percent of aagree opinion forms the highest rate by combination the obtained percentages.

Also the average of total questions related to the fear structure was 16.3 with a standard deviation of 3.11.

Table 2. The frequency distribution of studied people in terms of answering to the questions of fear of disease

Questions related to the structure of fear of EPPM pattern	I totally agree		I agree		I do not agree I do not disagree		I disagree		I totally disagree	
	frequency	percentage	frequency	percentage	frequency	percentage	frequency	percentage	frequency	percentage
If I do not take my blood pressure drugs I will have storke soon	56	29	67	34.7	31	16.1	21	18.9	18	9.3
If I take my drugs arbitrary,certainly i will have its complications	33	17.1	55	28.5	65	33.7	24	12.4	16	8.3
I will develope to heart and renal and cerebral diseases if i do not take on time the drugs	42	21.8	71	36.8	29	15.0	36	18.7	15	7.7
Not to take the drugs on time causes to short my life	37	19.2	69	35.7	66	34.2	13	6.7	10	5.2
Not to take the drugs on time certainly causes to slow recovery of disease or no to be treated	58	30	52	26.9	49	25.4	23	11.9	11	5.8
Average(standard deviation)	**16.3 ± 3.11**									

Table 3 shows the results of t-test between the fear of disease and the rate of adherence to drug regime between studied patients.

As it can be seen, there is a significant relationship between fear of the disease and amount of adherence to drug regime (p= 0.002) and average of fear of the disease in patients with good adherence to drug regime is significantly more than those with poor adherence.

Table 3. Comparison the average of fear of the disease in terms of adherence to drug regime between studied patients

Adherence to drug regime	Average	Standard deviation	t	P-value
Good	18.33	3.19	-6.345	0.002
Poor	14.09	3.56		

Table 4 shows frequency distribution of patients with hypertension in terms of respond to questions of perceived susceptibility.

It can be specified by combining the obtained percentages that the question "I do not pay attention to the advices of other people to take medications and I act according to the prescription of my doctor" with 64.2 percent of agree opinion (totally agree and agree) contains the highest rate. Average number of total questions related to structure of perceived susceptibility was also 17.22 with a standard deviation of 4.72.

Table 4. Frequency distribution of studied people in terms of answering the questions of perceived susceptibility

Questions related to structure of perceived susceptibility of EPPM pattern	I totally agree		I agree		I do not agree I do not disagree		I disagree		I totally disagree	
	frequency	percentage	frequency	percentage	frequency	percentage	frequency	percentage	frequency	percentage
I'm more likely to develop heart diseases than others	23	11.9	24	12.4	69	35.7	42	21.8	35	18.2
I have more chance of heart attack and stroke than others	36	18.7	39	20.2	58	30	37	19.2	23	11.9
I do not pay attention to recommendations of other people and I take drugs as directed by my own doctor	57	29.5	67	34.7	33	17.1	18	9.3	18	9.3
High blood pressure drugs can not be taken arbitrarily	43	22.3	54	27.9	55	28.5	28	14.5	13	6.7
Positive family history of hypertension can be effective at start of blood pressure	12	6.2	26	13.5	60	31.1	46	23.8	49	25.4
Poor diet and stress increases the susceptibility of developing to hypertension	50	25.9	61	31.6	42	21.8	7	3.6	3	1.6
Average (standard deviation)	**17.22 ± 4.72**									

Table 5 shows the results about the t-test between perceived susceptibility and the rate of adherence to the drug regime between studied patients.

As it can be seen, there is a significant relationship between perceived susceptibility and amount of adherence to drug regime (P= 0.000) and average of perceived susceptibility in patients with good adherence to drug regime is significantly more than those with poor adherence.

Table 5. Comparing the average of perceived susceptibility in terms of adherence to drug regime between studied patients

Adherence to drug regime	Average	Standard deviation	t	P-value
Good	19.08	5.69	4.559	< 0.001
Poor	15.36	4.03		

DISCUSSION

We investigated the way of adherence to drug regime based on extended parallel process model in patients with hypertension in two parts of fear of disease and the rate of perceived susceptibility than disease in patients referred to hospitals affiliated with the Islamic Azad University of medical sciences branch in this study. The results of study showed that the average and standard deviation of fear of disease was 3.11 ± 16.3 among the studied people. Also the average of fear of the disease in people who had good adherence to drug regime was significantly higher than people with poor adherence. This subject can have imprtance of drug adherence due to the attitude and awareness level of patients with high blood pressure. As the results also showed in the study of Peter et al. (2010) that attitude, subjective norms, perceived behavioral control and intention as indicators associated with beliefs of goal to maintain the blood pressure have had within the normal range (7).

Based on the model of developed parallel process, if people believe that extremely are prone to disease or exposure to health risk, More will be stimulated to counter that threat, and then evaluate the effectiveness of solutions begins. In fact, fear of threat causes that people adopt strategies to deal with health risk. In case of realizing the threat assessment and then evaluate the effectiveness of strategies, the possibility of changing the attitude, behavior intension and behavior will be more (8).

The results of present study showed that the average and standard deviation of score of perceived susceptibility was 4.72 ± 17.22 among the studied people.

Also the average of perceived susceptibility in people who had good adherence to drug regime was significantly higher than people with poor adherence according the results of T-test test.

Perceived susceptibility also had decisive role in predicting self-care behaviors in the study of Vazini (2013) in Hamedan and Morowati Sharifabad (2008) in Yazd (9, 10).

In the study of Kamran et al. (2014), which examined the factors influencing on the drug adherence of patients with blood pressure in Ardebil,the results showed that patients who had more sensitive perceived ,had better drug adherence (11).

It can also be seen a significant relationship between higher levels of perceived susceptibility and better drug adherence in the research of Yuo et al. (2015) that adreesed the drug adherence of patients with blood pressure in China (12).

It is stated to justify these findings that people when show good and proper reaction to the health messages and disease prevention that they feel that they are at risk (perceived susceptibility).

This structure points to an abstract belief that a person in relation to the risk of developing to the disease or developing to the harmful state has as a result of the action to certain behavior (13).

As a result it can be stated that pay attention to the perceived susceptibility will be promising the valuable results than complications of the disease in an educational intervention program in order to increase self-care behaviors. According to the results of present research, the fear of disease, perceived susceptibility towards the disease play a significant relationship with adherence to drug perceptions in blood pressure patients. Following the hypertension, blood pressure control has great importance in order to make minimum the chance of creating the complications due to blood pressure. Accordingly, the promotion of self -care is recommended in relationship with drug therapy for patients with high blood pressure (12).

Existence the obstacles in access to patients according to their situations were among the limitations of this research. Also, since the adherence that is stated by the person, so the accuracy and precision of the answers given by the studied people is of the other limitations of this research.

REFERENCES

[1] Glanz K, Rimer BK, Viswanath K. (2008). Health Behavior and Health Education: Theory, Research and Practice. 4th ed. San Francisco: Jossey-Bass publisher, PP: 67-92.
[2] Abassi, M., 2004. Study how medical following and its communication with health behaviors in patients of blood pressure, pp: 41-42.
[3] Sahbaei et al. (2016). Explanation of Pharmaceutical Care of Cardiovascular Patients Hospitalized in Hospitals Affiliated with Shahid Beheshti University of Medical Sciences.International Journal of Pharmaceutical Research & Allied Sciences, IJPRPM.5(3):277-283.
[4] Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. Communication Monographs, 59, 329-349.
[5] Witte, K., Berkowitz, J. M., Cameron, K. A., & McKeon, J. K. (1998). Preventing the spread of genital warts: Using fear appeals to promote self-protective behavior. Health Education and Behavior, 25, 571–585.
[6] Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). Communication Monographs, 61, 113–134.
[7] Peters RM, Templin TN. (2010). Theory of planned behavior, self-care motivation, and blood pressure self-care. Research and Theory for Nursing Practice,; 24(3): 172-186.

[8] Qarly Pour Zabiholah, Hazavehei Seyyed Mohammad mehdi Sharifi, Mohammad Hossein, Nazari Mahin (2010). Reporting smoking status using parallel process model developed among the students of Shiraz Psrrahnmayy. Journal of Health Sciences (2) (3): 26-36.

[9] Wazini Hossein, Barati Majid (2013). Some factors such as predictors associated with self-care behaviors among patients with the use of HBM. Journal of Torbat, 4: 25-16.

[10] Morowati sharifabad Mohammad Ali, Ruhani Tonekaboni N., Baghiani moghadam Mohammad Hossein (2007). Examine the predictors of self-care in diabetic patients referred to Yazd Diabetes Research Center developed based on the health belief model. Journal of Medical Sciences Yazd martyr. 15 (3): 85-96.

[11] Kamran A, Sadeghieh Ahari S, Biria M, Malepour A, Heydari H. (2014) Determinants of Patient's Adherence to Hypertension Medications: Application of Health Belief Model Among Rural Patients. Ann Med Health Sci Res. 4(6): 922–927.

[12] Yue Z, Li C, Weilin Q, Bin W. (2015). Application of the health belief model to improve the understanding of antihypertensive medication adherence among Chinese patients. Patient Educ Couns.; 98(5):669-73.

[13] Glanz K, Rimer BK, Viswanath K. (2008). Health Behavior and Health Education: Theory, Research and Practice. 4th ed. San Francisco: Jossey-Bass publisher, PP: 67-92.