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Effect of the peer supportive program on blood pressure changes in patients affected with hypertension: A randomized controlled trial

Ameneh haidari¹, Mahin Moeini^{2*} and Alireza khosravi³

¹Student Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran.

²Ulcer Repair Research Center, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran

³Hypertention Research Center, Cardiovascular Research Institute, Isfahan University Of Medical Sciences, Isfahan, Iran.

* Correspondence E-mail: moeini@nm.mui.ac.ir

ABSTRACT

Hypertension is the biggest risk factor of death worldwide. The peer supportive program is one of low-cost programs which can be used to enhance patient information in chronic diseases. The aim of this study is to determine the effect of peer supportive program on blood pressure changes in patients affected with hypertension. This study was conducted on 64 patients referring to Isfahan hypertension center in two experiment (attending in 6 one-hour sessions of the peer supportive program), and control (attending in tow training sessions hold by researcher) groups in 2015. The blood pressure of samples was measured in two groups before the start of intervention, immediately, after that, and one month after intervention. Then it was analyzed using spss18 program, independent T-, Man-Withney, and Chi-Square experiments. Before the intervention, there was no significant difference between the systolic and diastolic blood pressure scores of the two groups. However, immediately after that, and one month after beginning of the intervention, the mean systolic and diastolic blood pressure scores in the experimental group was significantly ($P < 0.001$). The peer supportive program is effective in promoting systolic and diastolic blood pressure scores in patients with hypertension.

Keywords: The peer group, hypertension, supportive program, Iran.

INTRODUCTION

Cardiovascular diseases is the major cause of mortality in the world [1]. One cause of Cardiovascular diseases is hypertension [2]. Hypertension has been proclaimed as the most common cause of strokes in Iran in 2011 [3], and 50% of patients are being affected due to un-treating or un-proper controlling of high blood pressure [4]. Despite many proven medical treatments, the amount reported for disease control is disappointing [2]. Hypertension is included in diseases, the major control part of which is entrusted with patients [5]. Adherence to treatment regimen is one of the factors involved in blood pressure control [4]. One low-cost information which is used to disease control is providing information through persons who are informed and involved with disease [6]. Various studies have been suggested the effectiveness of this method in patients affected with different diseases in different aspects. However, the results of some studies have been reported the un-effectiveness of the peer supportive programs [7]. We did not find a study regard to the effect of this method in hypertension changes.

The aim of study was determining the effect of the peer group in blood pressure changes in tow experiment and control groups immediately after completion of the peer supportive program, and one month after that.

MATERIALS AND METHODS

This study is a clinical trial study conducted by Isfahan Hypertension Research Center on 64 patients referring to center with following conditions. The participants were selected using convenience sampling method. The sample size was determined in 95% confidence interval and 80% power as 32 individuals in each group. The subjects were randomly (through the random selection of cards with the numbers 1 and 2 by the patients) divided into two groups of intervention and control.

The inclusion criteria consisted :desire to participate in the study, the ability to write and read , fluency in Persian, history of affecting with hypertension, being treated with at least one antihypertensive drug and age over 18 years. 3 out of all persons whose blood pressure has been controlled during 3 past month , and have not had the hypertension effect, had the higher education and were interested in group leadership [8] were selected to lead the group.

Before holding sessions for samples group, tow 1.5-hours sessions [6] were hold in with leaders , and the researcher heard their information and experiences around three matters of drug regimen, diet and activity program, then matched them with scientific books and completed them where necessary [9].

The experiment groups were divided to 3 sub-group(8-11- person in each sub-groups).

They was intended in six 60-hours session hold by leader (8,10,11). leader spoke abute three axes; diet, medication regimen, and exercise program, Also heard their information and experiences abute the sthree axes .The control group attended in two training sessions hold by researcher [6].

Systolic and diastolic blood pressure was measured in the two groups of patients before, immediately and 1 months after the beginning of the intervention. Blood pressure was measured with OMRON (made in China) digital device. Blood pressure device was calibrated in the beginning of study before taking samples BP in first turn, and at the end of work.

Analysis

Statistical analysis of data was conducted using Student's independent *t*-test, Chi-square, Mann-Whitney U test, and repeated measures analysis of variance (ANOVA) in SPSS software (version 18; SPSS Inc., Chicago, IL, USA). Thus, data obtained from 32 patients in the intervention group and 32 patients in the control group were analyzed..

Ethical considerations

The study has been confirmed by Research deputy of Isfahan University of Medical Sciences with code number of 394268, and the samples completed the written experiment testimonial before starting the study. The training books provided with experiment group, were given to control group also at the end of study.

Findings

The results of this study showed that samples in experiment and control groups were statistically almost identical in terms of age, education, marital status, body mass index, history of hospitalization($p>0.05$). Results show that the mean age in experiment group was 53.30 (SD, 8.3) years and in control group was 56.7 (SD, 10.9) .

The mean systolic and diastolic blood pressure in experiment groups immediately after , and one month after peer supportive program, has significant difference ($p<0.001$), but it has not significant difference in control group in same time ($p>.05$).

The mean systolic and diastolic blood pressure in experiment and control groups before the peer supportive program has not significant difference ($p>0.05$), but it has significant difference immediately after, and one month after that($p<0.05$).

The mean changes in systolic and diastolic blood pressure scores in the experiment and control groups immediately after peer supportive program and one month after that ,has significant difference compared to before the peer supportive program($p<0.01$)(table 1).

DISCUSSION AND CONCLUSION

The results of study showed that the peer supportive program has had an effect on the mean systolic and diastolic blood pressure in the experiment group and has improved their mean blood pressure score.

In confirming this conclusion, the study conducted by Mosack *et.al* with aim of investigating the effect of veterans peer group supportive program on patients self-management , also the mean systolic and diastolic blood pressure($p>0.05$) had no difference before intervention [14].

According to study results, the mean systolic and diastolic blood pressure in experiment group before intervention, immediately after that , and one month after that has been different ($p<0.001$)

In confirming the results of study , the study conducted by Alidosti *et.al* with aim of investigating the effect of the peer group on function and science of high-school students affected with diabetes type 1 in 2012, there was a significant difference in student function before completion of six 52-60 minutes sessions, immediately after that , and one month after that.

Moreover, regarding the results of present study, Baumann *et.al* conducted a study entitled “investigating the effect of peer group on adult patient self- care affected with diabetes type 2 “ in Angola .The study showed that 80% of participating samples were affected with hypertension. Moreover, Baumann *et.al* investigated the effect of peer group on the samples blood pressure changes simultaneously. The results suggested that the peer group supportive program has had a positive effect ($p<0.05$) on diastolic blood pressure of patients in previous experiment group immediately after intervention, and 4 month after that. Moreover, diastolic blood pressure in experiment group immediately after intervention, and 4 month after that was different with control group, and has reached from mean of 85 to mean of 76 after intervention. A change was also occurred in systolic blood pressure score has been reached from 146.34 before intervention from 140.17 before intervention. However the results show that there is not significance difference statistically, but the peer supportive program was effective in experiment group clinically ($p>0.05$) [13].

The study conducted by Mosack *et.al* suggested that after peer supportive program, the mean systole blood pressure score and the mean diastolic blood pressure score in experiment group before and after intervention has not had significant difference ($P.0.05$) [14].

In view of researcher, the reason of difference between the present studies with study conducted by Mosack *et.al* was in method and time of measuring pressure, the study aims, and principal differences in study method. In this study, the researcher concentrates on samples adherence to treatment regimen, and 3 basis of diet,pharmaceutical regime and schedules, as well as the effect of observing these regime on changes of sample blood pressure changes. The study conducted on 64 physically -heath samples infected only with hypertension.

Moreover, in present study the intervention has been conducted during 1.5 month, in 6 one-week sessions, one session weekly, and the number of participants in groups was 10-11 persons. But Moosak *et.al* study focused on effect of program on self-management based on nutrition, and the effect of physical activity based on blood pressure changes. The samples in Moosak *et.al* are Veterans affected with Hypertension divided in 4-5 persons peer groups , and the supportive sessions were 12 one-hour-session during one year , and the time of sessions were monthly agreed by partners. Also the results of research showed that he mean changes of systolic blood pressure score and one month after the intervention was different($p<0.05$).

The study conducted by Hosseini Borojeni *et.al* showed that Regular activities (exercise, regular walking), weight loss, limiting sodium intake are among the important factor in controlling systolic and diastolic hypertension control. Exercise is one of non-pharmaceutical ways to control hypertension, and the researches have shown that patients have been able to decrease their own systolic blood pressure up to 11 mm Hg, and their own diastolic blood pressure by up to 8 mm Hg through regular exercise [15].

In one hand, the results of study conducted by Chan *et.al* shows that the difference in studied whites and blacks diet has been an important factor in blood pressure control and reducing effects such as heart attacks and strokes in these patients, and adherence to a diet of vegetables, fruits and low-fat dairy has been associated with reduction in systolic pressure up to 4.3 mm Hg.

Moreover, this study showed that the blacks affected with hypertension that have not observed diet, were more infected with heart attack and stroke [16]. Also adherence to medication regimen is one of the important factors to control hypertension [4, 13].

Regarding that sessions hold by the peer group focus on 3 influential agents to control blood pressure –adherence to diet, medication regimen, and activity program, receiving such result are expected and are in line with other studies [4,13,15,16].

Also, in confirming the present study, the study conducted by Shamsi Zadeh et.al entitled with “investigating the effect of peer training on the amount of anxiety in patients undergoing coronary artery bypass graft “showed that the peer supportive program after intervention compared to control group has led to significant decrease ($p<0.001$) in patients anxiety before surgery, 5 days after that, and one month after that [17].

Moreover the study conducted by Booman et.al tried to investigate the influence of the peer group program in adults affected with diabetes type 2 , and showed that there was a significant difference in systolic blood pressure of samples in experiment and control groups before and after intervention ($p<0.05$) [13].

Table 1 : comparison of the mean score of blood pressure in the two groups at different time

Time	Groups				Independent t- test	
	intervention		Control		t	P -value
	Mean	SD	Mean	SD		
SBP Before the intervention	144.78	9.45	145.31	14.60	0.86	0.17
SBP Immediately Intervention	124.09	9.19	143.12	13.14	6.71	<0.001
SBP 1 month after intervention	126.56	10.73	142.53	11.01	5.87	<0.001
DBP Before the intervention	92.41	4.22	89.75	7.60	1.73	0.09
DBP Immediately intervention	80.09	6.57	87.91	60.70	4.71	<0.001
DBP 1 month after Interventionn	80.00	5.48	88.9	5.43	50.80	<0.001
F SBP	SBP	DBP	SBP	DBP		
p-value SBP	2.49	2.73	4.54	3.84		
	<0.001	<0.001	0.31	.12		
ANOVA:Analysis of variance	SD:standard deviation				SBP: systolic blood pressure	DBP: diastolic blood pressure

CONCLUSION

According to findings of present study, the peer group supportive program can be a suitable way to improve controlling the systolic and diastolic blood pressure in patients affected with hypertension.

In this study we could make some positive changes to control patients' blood pressure in the form of a low-cost program.

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