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Comparing the Effect of Teach Back and Motivational Interview on the Blood Pressure in Hypertensive Patients

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ABSTRACT

Aims Hypertension is one of the common, chronic, and preventable diseases which lifestyle change is the most important strategy for its prevention and treatment. The aim of this study was to compare the effect of teach back and motivational interview on the blood pressure in hypertensive patients.

Materials & Methods In this clinical trial, 81 hypertensive patients in the health centers of Yasuj city in 2018 were selected by purposive sampling method and divided into two intervention groups and one control group through random block allocation (27 people in each group). For one intervention group, 3 teach back sessions were conducted, and for the other intervention group, 5 group motivational interview sessions were performed, while the control group received only the usual care. Systolic and diastolic blood pressure of samples were checked and recorded at the beginning of the study and two months after the intervention.

Findings In post-test, systolic and diastolic blood pressure in teach back group decreased compared to the control group, but this decrease was not significant ($p>0.05$), while systolic and diastolic blood pressure in the motivational interview group decreased significantly compared to the control group ($p<0.05$). The difference in systolic and diastolic blood pressure decreases in the motivational interview group was not significant compared to teach back group ($p>0.05$).

Conclusion There is no difference between the effect of motivational interview on blood pressure level compared to teach back, but only the effect of motivational interview on the above variable is confirmed.

Keywords Teach Back; Motivational Interviewing; Hypertension; Blood Pressure

CITATION LINKS

[1] Hypertension prevalence, awareness, treatment and ... [2] A comparison of the 2017 American College of ... [3] Heart disease and stroke statistics—2018 update ... [4] Efficacy of cognitive-behavioral stress management ... [5] Prevalence, awareness, treatment, control ... [6] Prevalence, awareness, treatment, and risk factors associated ... [7] Prevalence and determinants of hypertension ... [8] Effects of comprehensive lifestyle modification on diet ... [9] Self-efficacy and restrained eating in relation ... [10] Effects of 8 weeks sustained follow-up after a nurse ... [11] Evaluation of the effect of motivational interviewing ... [12] Pilot study of potential barriers to blood pressure ... [13] Effect of self-care education on quality of life ... [14] Motivational interviewing: Helping people ... [15] Motivational interviewing in internet groups ... [16] A systematic review of motivational interviewing ... [17] Effect of Motivational Interviewing on Adherence ... [18] Effect of motivational interviewing on blood pressure ... [19] Effect of motivational interview on athropometric ... [20] Using the teach-back and Orem's Self-care Deficit ... [21] Interventions to improve care for patients with ... [22] Is "teach-back" associated with knowledge ... [23] Efficacy of the two educational methods: Traditional and electronic ... [24] Manual of blood pressure ... [25] Effectiveness of a motivational interviewing intervention ... [26] Patient empowerment and motivational interviewing ... [27] The effectiveness of the teach-back method ... [28] Comparing the effect of education by Peers ... [29] Empowerment of patients with end-stage renal ...

Introduction

Hypertension is one of the major risk factors for cardiovascular disease [1]. According to the latest American Heart Association classification, normal blood pressure should be below 120 on 80 mmHg. Accordingly, those with higher rates are considered to be prone to hypertension or have hypertension [2]. From 2005 to 2015, the mortality rate due to high blood pressure increased by 10.5% [3]. It is predicted that by 2025 the prevalence of high blood pressure will increase by 60% and reach to 1.56 billion people [4]. According to studies in different provinces of Iran, the prevalence of hypertension is estimated between 7% and 25% among adults and is more prevalent among men than women [5-7]. It is one of the common, chronic, recurrent, but also preventable diseases and due to the wide and long-term changes in lifestyle-related behaviors, is considered as a challenging disorder [8, 9].

Changing lifestyle is the most important strategy for the prevention and treatment of hypertension [10, 11]. 53% of patients with uncontrolled hypertension, despite regular training, do not control their blood pressure properly. Therefore, it is essential to use more effective methods [12]. In this regard, health care providers, including nurses can help chronic patients by educational counseling programs to successfully solve the problem and strive for the highest possible level of health [13]. Motivational interviewing is a client-centered approach, which is a guide to strength and enhance intrinsic motivation, and is used to change through the discovery, identification, and resolution of doubts and ambiguities [14]. It is also an encouraging flexible intervention to motivate health care in medicine, health, and psychiatry for all age ranges of patients. It can be used alone or in combination with other therapeutic methods, including in-person, telephone, and Internet [15].

In this regard, the results of a systematic study by Knight *et al*. showed that motivational interview had a positive effect on the control of diabetes, asthma, hyperlipidemia and cardiovascular disease [16]. Also, the results of the study by Mirkarimi *et al*. indicated that motivational interview improves commitment to treatment interventions and blood pressure control in hypertensive patients [17]. The results of the Navidian *et al*. study also showed that motivational interview has the potential to influence multiple behaviors simultaneously and eliminates several barriers to routine nutritional therapy through the use of motivational techniques, thereby lowering systolic and diastolic blood pressure than usual lifestyle training [18]. According to the results of the study by Sharafi *et al*. in 1979, motivational interview had no significant effect on blood pressure of the samples [19]. Studies have also shown that 40% to 80% of patients forget medical information immediately after receiving it [20, 21]. Therefore, it is imperative to remember and understand information in people with chronic diseases due to the complex treatment regimen, the necessity of self-management, medication plans and clinical status to change their health status [22].

The effectiveness of old-fashioned and traditional teaching and learning methods has recently decreased [23]. Training patient requires the use of appropriate educational methods that try to meet the patient's educational needs by establishing appropriate interpersonal communication with the patient [20]. Teach back is a comprehensive interdisciplinary strategy that examines the learner's understanding and comprehension through questioning. Patients then asked to express what they have heard and understood from the teacher [24]. If the client does not understand the contents well, the trainer will repeat them until the client fully understands [25, 26]. In this regard, the results of the study by Ha Dinh *et al*. in 2016 showed that teach back generally has positive effects regarding health care outcomes, although these were not always statistically significant. Studies included in this systematic review showed better results in specific disease knowledge, adherence, self-efficacy, and inhalation techniques [27].

Given the high prevalence of hypertension and its complications, various measures to prevent, control, or treat it are of particular importance and it is necessary to find more effective teaching methods in this field. Based on our research, no study was found on the effect of teach back on blood pressure in hypertensive patients and also to compare this method with motivational interview on blood pressure in hypertensive patients in Iran. In addition, the results of studies evaluating the effect of motivational interview on clinical indicators are contradictory. Therefore, the aim of the present study was to compare the effect of motivational interview and teach back on the blood pressure of hypertensive patients.

Materials and Methods

This study is a clinical trial. The study population consisted of primary hypertensive patients referred to the Yasuj Health Centers in 2018 who were selected through purposive sampling method and divided into two intervention groups and one control group through random block allocation method (N=27 per group). According to the results of the study by Ranjbar *et al*. [28] and considering the type I error of 0.05 (95% confidence level) and the type II error of 20% (80% test power), based on the formula, the sample size was calculated 11.9 subjects. Due to the considered three groups (two intervention and one control groups), the necessity of increasing the sample size because of a multiple comparison and using the sample size correction formula, and also a possible attrition of 30%, 27

individuals were estimated in each group and a total of 81 patients were included in the study.

Inclusion criteria included diagnosed primary hypertension for at least 6 months, age range of 35-60 years, no attendance to blood pressure training programs in the past 6 months, no history of chronic diseases, including cancer, lupus, advanced heart and renal failure, diabetes, stroke, chronic kidney disease, chronic renal parenchyma, renal artery stenosis, a history of nephrectomy, no history of renal surgery, endocrine diseases, including pheochromocytoma, Cushing's syndrome, no use of contraceptive pills 6 months before and during the study, and no drug and alcohol addiction. Written consent was obtained from all study participants.

A non-invasive barometer (Mediturf; Japan) was used to measure blood pressure. It was calibrated before the intervention by the NIBP-Analyzer (Seculife; Germany) and then checked by a researcher and another person and the results were compared. The reliability and validity of the device were also measured by measuring the desired variable (blood pressure) in several samples with another device and comparing the results of both devices. The subjects were asked not to use caffeine, alcohol, and tobacco 30 min before measuring blood pressure, and also were asked not to fast, have an empty bladder resting and not talking for 5 min before measuring blood pressure. While measuring blood pressure, the subjects were relaxed and leaned back against a chair. The patient's right arm (without sleeve) was placed on the base horizontally and flat on the heart. He sat quietly during the measurement and the blood pressure checker was also asked to be quiet. The armband was closed 2 to 3 cm above the patient's arm or elbow crease, so that there was enough space to place one finger under the armband. Blood pressure was then measured using a barometer at least twice. There was at least 1 min interval between the two measurements. The mean of these values was recorded as blood pressure value [24]. All measurements were performed by one person (the researcher) in order to eliminate the error.

The intervention group was subjected to a face-to-face training using simple words and an educational pamphlet on hypertension was distributed among the subjects of this group. Three 40-45-min sessions were considered for each patient, but sometimes they lasted 60 min depending on the patient's desire or level of learning (Table 1).

The first session was conducted on hypertension and its symptoms, risk factors, complications, and the importance of prevention and control, whereas in the second session, nutritional skills as well as exercise and its effect on blood pressure were considered. The third session was conducted on the drugs and medication therapy and their restrictions and quitting inappropriate eating habits. One month after intervention, patients were contacted by telephone on the considered days and times and their questions were answered.

In the motivational interview intervention group, the structure of motivational interview sessions was extracted from the five-session motivational interview intervention workbook based on the Miller and Rolink principles (Table 2).

Table 1) Teach back group intervention protocol (for each session)

Activity and purpose	Approximate time
Pre-test	
Open-ended questions based on the goals of each session are used.	10 min
Targeting	
Behavioral goals in each psychomotor-cognitive domain are determined for each patient based on the pre-test.	5 min
Performing the training process	
The training process is done according to the following points: - Transferring the content and concepts in a simple and transparent fashion - Focusing on key points and repeating them at the end - Using short sentences	10-15 min
Evaluation	
Correct answering to 75% of the questions means that the training was effective, otherwise the training will continue.	10 min
Deciding to repeat the above steps based on the patient's learning and educational goals	
The training is repeated again according to what the patient did not mention.	5-10 min

Table 2) The structure of motivational interview sessions

First session
Familiarity: Introduction, norms and processes, philosophy of facilitation, freedom training, training on the behavior effect dimensions, change cycle training, implementation with an adherence to the principles and techniques of motivational interview
Second session
Emotions: Exercise to identify emotions, exercise and completing effect dimensions with emotional dimensions and assignment
Third session
Positive and negative aspects of the behavior and change: brainstorming exercise on the short-term and long-term disadvantages and advantages, training on alternative options, support of self-efficacy
Fourth session
Values and perspective: identifying and prioritizing values, matching value and behavior, identifying tempting situations
Fifth session
Summary and summing the previous meetings using perspective exercises, starting the behavior change program

Participants received motivational interview by a researcher in a group working room, in groups of 8-12 individuals for five 60-90-min sessions. Patients were allowed to be absent only one session after coordination with the researcher. The educational content of the motivational interview sessions included healthy eating habits, regular physical activity, smoking cessation, timely medication use, and stress reduction in hypertension. The control group received routine care provided for patients referring to the health centers.

Two months after the end of the study, blood pressure was again recorded as a post-test in all subjects.

The data were analyzed by SPSS 21 software using one-way ANOVA, chi-square test, Bonferroni post hoc test, Fisher exact test and paired t-test.

Findings

25 men and 56 women with a mean age 47.4±7.4 years participated in the study. There was no significant difference between the groups in terms of demographic variables (p>0.05; Table 3).

At baseline, there was no significant difference in mean systolic and diastolic blood pressure between study groups (p>0.05), but two months after the end of the study, mean systolic and diastolic blood pressure was significantly different between the intervention and control groups (p<0.05). Also, there was no statistically significant difference in intra-group comparison in teach back group before and two months after the intervention, but in the motivational interview group, there was a statistically significant difference. There was no statistically significant difference in the control group like teach back group (Table 4).

Table 3) Comparison of absolute and relative frequency distribution of qualitative demographic variables of hypertensive patients in studied groups at baseline (N=27 per group; the numbers in parentheses are percentages)

Demographic variables	Teach back group	Motivational interview group	Control group	Total	P. value
Gender					
Male	7 (25.9)	8 (29.6)	10 (37.0)	25 (30.9)	*0.67
Female	20 (74.1)	19 (70.4)	17 (63.0)	56 (69.1)	
Marital status					
Single	1 (3.7)	1 (3.7)	4 (14.8)	6 (7.4)	**0.35
Married	26 (96.3)	26 (96.3)	23 (85.2)	75 (92.6)	
Education level					
Below Diploma	16 (59.3)	5 (18.5)	12 (44.4)	33 (40.7)	
Diploma	6 (22.2)	14 (51.9)	9 (33.4)	29 (35.8)	*0.06
Above Diploma	5 (18.5)	8 (29.6)	6 (22.2)	19 (23.5)	
Living status					
Living alone	2 (7.4)	1 (3.7)	4 (14.8)	7 (8.6)	**0.49
Living with spouse and children	25 (92.6)	26 (96.3)	23 (85.2)	74 (91.4)	
Occupation status					
Employee	5 (18.5)	6 (22.2)	5 (18.5)	16 (19.8)	
Non-governmental	6 (22.2)	6 (22.2)	7 (25.9)	19 (23.5)	*0.99
Housewife	16 (59.3)	15 (55.6)	15 (55.6)	46 (56.7)	
Insurance status					
With insurance	21 (77.8)	19 (70.4)	14 (51.9)	54 (66.7)	*0.12
No insurance by insurance organizations	6 (22.2)	8 (29.6)	13 (48.1)	27 (33.3)	
Smoking					
Yes	2 (7.4)	1 (3.7)	2 (7.4)	5 (6.2)	**0.99
No	25 (92.6)	26 (96.3)	25 (92.6)	76 (93.8)	

*Chi-square test; **Fisher exact test

Table 4) Inter-group and intra-group comparison of the mean values of systolic and diastolic blood pressure in patients with hypertension at baseline and two months after intervention

Variables	Baseline	Two months after the interventions	Mean difference	Intra-group Test Results **
Systolic Blood Pressure (mmHg)				
Teach back group	130.0±17.4	128.5±15.1	-1.5±10.8	p=0.48; t=-0.71
Motivational interview group	128.3±14.4	122.6±12.3	-5.7±11.2	p=0.01; t=-2.7
Control group	131.7±14.0	132.0±10.9	0.4±10.4	p=0.85; t=-0.19
Inter-group Test Results *	p=0.73; F=0.32	p=0.03; F=3.7	-	-
Diastolic Blood Pressure (mmHg)				
Teach back group	82.6±9.5	81.1±12.7	-1.5±8.9	p=0.39; t=-0.87
Motivational interview group	81.7±10.0	76.9±10.9	-4.8±11.6	p=0.04; t=-2.2
Control group	81.3±7.9	84.1±5.9	2.8±8.1	p=0.09; t=1.8
Inter-group Test Results *	p=0.87; F=0.14	p=0.04; F=3.4	-	-

* One-way ANOVA; ** Paired t-test

In paired comparison, the mean systolic and diastolic blood pressure of the hypertensive patients decreased in teach back group in the post-test compared to the control group, but this difference was not significant (p>0.05). However, the mean systolic and diastolic blood pressure in the hypertensive patients in the motivational interview group decreased significantly in the post-test compared to the control group (p<0.05). The reduction in systolic and diastolic blood pressure in patients with hypertension after motivational interview compared to teach back was not

statistically significant (p>0.05; Table 5).

Table 5) Paired comparison of the intervention and control groups two months after interventions using Bonferroni post hoc test

Groups	Mean difference	P. value
Systolic Blood Pressure (mmHg)		
Control-teach back	-3.5±3.5	0.96
Control-motivational interview	-9.4±3.5	0.03
Teach back-motivational interview	-5.9±3.5	0.29
Diastolic Blood Pressure (mmHg)		
Control-teach back	-3.0±2.8	0.88
Control-motivational interview	-7.2±2.8	0.04
Teach back-motivational interview	-4.3±2.8	0.4

Discussion

The purpose of this study was to compare the effect of teach back and motivational interview on hypertension in hypertensive patients. The results of this study showed that there was no statistically significant difference in blood pressure levels between motivational interviewing and teach back method two months after interventions, but in the motivational interview group, two months after the intervention, there was a statistically significant difference compared to the control group and the intra-group comparison. In this regard, Ma *et al*. conducted a study on the impact of motivational interview on hypertension care. Their results showed that after 6 months, the intervention group had better control on their blood pressure than the control group, and systolic and diastolic blood pressure in the motivational interview group decreased, which was statistically significant [11]. These results are in line with the results of the present study, despite the difference in posttest time. In addition, Hardcastle *et al*. in 2010 studied the effectiveness of motivational interview intervention on weight loss, physical activity, and cardiovascular risk factors with a 12-month follow-up in 358 patients. Their results showed a significant decrease in diastolic blood pressure in the motivational interview group, 6 months after the intervention, although the control group did not show a significant difference, which is consistent with our results [25].

Nurses typically spend considerable time trying to persuade patients to change harmful behaviors. It has shown that the behavior cannot be successfully reformed unless patients set goals and internalize the need for change. The motivational interview respects the patient's autonomy and independence and recognizes that it is the patient who can make a decision on how to behave. Using this approach can help patients interact and empower nurses to communicate well and achieve their personal goals [26, 29].

No comparative study was found to compare the results of tech back on blood pressure with other studies, however, considering that changing blood pressure and keeping it constant requires longer time, it may be possible to attribute the cause of ineffectiveness teach back on blood pressure to analysis two months after the intervention. Teach back was also conducted in 3 sessions and motivational interviews were conducted in 5 sessions and researcher's experience also shows that patients in the teach back group forgot some of the content of the previous session in spite of the repetition of the contents, which can also affect the ineffectiveness in teach back group.

Based on the results of this study, using motivational interview in patient in health centers and hospitals is recommended. The possible communication and exchange information between the intervention and control groups and also the existence of other communication methods, such as media were the limitations of the present study. It is recommended to conduct a study with the same subject with a 6-month and one-year follow-up for further review.

Conclusion

There is no difference between the effects of motivational interview on blood pressure compared to teach back, but only the effect of motivational interview on blood pressure is confirmed.

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