



Research Paper

The Effect of Educational Intervention on the Adherence to Treatment Among Iranian Elderly With Hypertension



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ABSTRACT

Background: Lack of adequate awareness specially among elderly is considered as one of the major barriers to follow healthy lifestyle.

Objectives: This study conducted to investigate the effect of educational intervention on the adherence to treatment among Iranian elderly with hypertension.

Materials & Methods: In this quasi-experimental study 88 participants allocated in control and intervention group. Using standard questionnaire, participants' adherence to treatment were evaluated after educational intervention. Data were analyzed via SPSS software, version 16.

Results: Mean±SD of participants' age was 67.13±7.12 and 67.34±5.41, respectively in control and intervention groups. T-test shows significant differences between control and intervention group in all three dimensions of adherence in one and 3 months after intervention ($P \leq 0.05$).

Conclusion: According to these finding educational intervention could improve patients' adherence to treatment, so it is recommended to educate elderly people with hypertension in order to increase their adherence to treatment. Further studies are recommended to discover the elderly HTN patients' needs.

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Introduction

Elderly is considered as a worldwide major challenge with high consumption of health services [1-3]. It is associated with various health consequences; from physiological to social and mental health problems [4, 5]. Hypertension is one of the overwhelming physiological problems among elderly worldwide [6, 7]. Also, a recent population based study among 4394 Iranian aged 50 to 74 years revealed the prevalence of uncontrolled hypertension as 61.7% (95% CI, 60.3%, 63.2%) [7].

Having a healthy lifestyle considered as a key term managing elderly health associated problems [8, 9], especially hypertension. But there are some barriers following healthy lifestyle. In this regard, lack of adequate awareness, physical disabilities, loneliness, and health services accessibility are considered as common barriers [8-12], however, there are more factors associated with adherence to follow up treatment of hypertension.

Educational intervention is considered as a solution to increase adherence to treatments [8, 13-15]. In this nursing approach, continuous provision of educational intervention along with education is emphasized. It is supposed that application of follow up educational intervention can improve patients' adherence to treatment [5, 15-18].

Lack of education in patients with hypertension (HTN) patients led to failure in treatment and cause secondary consequences such as; myocardial infarction [7], cerebrovascular accident, renal failure, and sudden death [3, 7, 11, 14]. There is little interventional study among Iranian elderly to evaluate the effect of educational intervention on adherence to treatment of hypertension. In this quasi-experimental study, we investigated the educational intervention on adherence to treatment of elderly with hypertension.

Material and Methods

Design and participants

This is a semi-experimental experimental study conducted on elderly living in District 19 of Tehran. According to the results of previous study by Sanaei et al. [19], considering a power of 80% and confidence limit of 95%, a total of eighty-eight sample was calculated that were assigned into control and intervention groups. Study population was consisted of all elderly people who

were diagnosed with hypertension in official health system in district 19 of Tehran. Inclusion criteria were having at least diploma in education, being under medical treatment for hypertension, and being at least 60 years old. Possible criteria for being excluded from the study were failure of adhere to the anticipated treatment plan due to the need for re-hospitalization or emergency intervention, disease progression during the study and patient death.

Intervention

The educational intervention included of four training sessions among intervention group. This intervention lasted one month and was consisted of three major subjects: Diet and nutrition, drugs and treatments, activity and movements. The content of educational subjects was prepared with an expert panel of educating team, based on adherence model [19] in order to increase the subject's knowledge about HTN and removing their misconceptions about the disease (Table 1). The contents introduced to the subjects through subjects' engagement in discussion through face-to-face education and social media follow up methods. During this intervention, participants in control group received routine training with no participation and engagement in the educational contents.

Measurement

Medical adherence in this study was measured through a researcher-made questionnaire [20]. This questionnaire was consisted of three main subjects; 1) Diet and nutrition (34 items), 2) Drugs and treatments (10 items), 3) Activity and movements (5 items). The first section (diet and nutrition) was consisted of 34 questions about food basket, consumption of fat and salt, frequency of consumption and how to consume and major food ingredients in terms of the amount of consumption. The items assigned a score from 0 to 170 to each of the choices based on food type and finally converted between 0 to 100. In section of medication regimen, ten questions were assigned based on a six-point Likert scale (never=0, very high=6). The range of scores from 0 to 60 were then converted from 0 to 100. To assess the reliability of the questionnaire, 25 participants completed the total questionnaire in 3 sections and then Cronbach's α was computed that were 0.85, 0.71 and 0.79 for diet, medication regimen and physical activity domains, respectively. Also, Intra-class correlation coefficient (ICC) was 0.77, 0.82 and 0.75 for three areas, respectively. To assess validity of this tool, face and content validity were determined using an expert panel of scientific opinions of ten faculty members of [Qazvin University of Medical University](#).

All questionnaires were fulfilled by the respondents in a suitable time and place. The questionnaire was asked and filled in by a previously instructed geriatric nurse. Completing each questionnaire took an average of 10 minutes. Medical adherence in control and intervention group was measured in three steps; before intervention, 1 month and 3 months after intervention.

Statistical analysis

Data were described using Mean±SD of variables. T-test was used to identify differences in mean of adherence to treatment between intervention and control group. A P<0.05 was considered significant. All analyses were performed in SPSS software, version 19.

Results

A total of 88 questionnaires were included. Mean±SD of participants' age was 67.13±7.12 and 67.34±5.41, respectively in control and intervention groups. There was no significant difference in terms of age and other selected demographic variables including job, marital, and educational between the two groups.

Difference in mean of adherence dimensions between control and intervention group at baseline and after intervention are shown in Table 2. T-test shows significant differences between control and intervention group in all three dimensions of adherence in one and 3 month after intervention (P<0.05) (Table 2).

Table 1. Characteristics and content of educational sessions

Session	Content	Average Time (min)
1	Introduction, healthy life-style (definition, components), hypertension (definition, types, measuring, complications, check-up)	45-60
2	Physical activity for HTN (definition, types of PA, measuring, advantages, contraindication and cautions)	45-60
3	Medication regimen for HTN (importance of adherence, effects and side-effect of, importance of timely consumption)	45-60
4	Diet for HTN (definition, importance, types of diet)	45-60
5	Conclusion (overall review of sessions)	45-60



Table 2. Mean±SD of adherence dimensions among control and intervention group

Dimensions of Adherence	Mean±SD					
	Before Intervention		After Intervention			
			1 Month		3 Months	
	Control	Intervention	Control	Intervention	Control	Intervention
Diet & nutrition	84.6±33.8	85.5±35.3	86.35±34.8	89.22±27.1	86.3±23.9	88.19±32.4
	t=1.48, P=0.211		t=10.4, P=0.001		t=6.53, P=0.001	
Drug & treatment	35.7±5.47	36.8±5.11	35.3±4.4	51.3±4.5	34.7±4.6	49.2±4.7
	t=1.11, P=0.30		t=8.32, P=0.001		t=3.56, P=0.001	
Activity & movement	36.5±3.3	35.7±2.8	40.50±3.50	63.5±3.03	39.6±3.7	60.48±3.10
	t=1.7, P=0.09		t=3.15, P=0.001		t=9.03, P=0.001	



Discussion

Adherence to treatment among elderly are affected by various factors. In order to induce adherence, application of educational interventions is recommended. This study conducted to discover the use of educational intervention among elderly with hypertension in order to assess their adherence to treatment consequences.

This study revealed a significant increase in all three dimensions of adherence after educational intervention compared with control group. Elderly people commonly are encountered with low consciousness, so continues education and follow up may compensate this defect. This finding emphasizes the effect of application of follow up educational intervention model on adherence to treatment improvement and is consistent with other similar studies [8, 9, 13, 21]. In this regard, it is noticeable that, lack of knowledge [21, 22] and external motivation [23] are the most common barriers of adherence to treatment. In this study we induced awareness of subjects about failure of adherence. It was a suitable trigger to start and continue treatment schedule. It is noticeable that in our study subjects' adherence level was improved due to face-to-face method of education ended to follow-up with administered nurse who was expert to identify and decrease barriers for adherence.

Also, in face-to-face method of education we adjusted the content of education according to every subject's characteristic. This is known as tailoring method of health education which define as adapting the education to subjects' needs with the expectation that this individualization will improve the results of the education. A systematic review by Chen and Wang discovered variety purpose of social media in health education [24]. However social media-based education is a common route to increase adherence to treatment, there are some barriers in this regard. Application of common sense and user-friendly media is recommended to restrict barriers. Social media, considered as a widely used and accessible way among elderlies, so it is recommended to follow up elderly people with hypertension through social media in order to increase their adherence to treatment.

Conclusion

Most of the elderlies may experience loneliness that can have negative effects on their treatment adherence. There are not any valid evidences regarded to the elderlies' educational needs in Iran. So, it is recommended to conduct more studies in these regards to evaluate their educational needs and the effects of various methods of

education on their adherence to treatment. It was concluded that our face-to-face education ended to follow-up with an expert nurse improves the elderlies' adherence to treatment.

Ethical Considerations

Compliance with ethical guidelines

The present study was approved by Ethics Committee of [Qazvin University of Medical University](#) (Code: IR.QUMS.REC.1401.012)

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Authors' contributions

Conceptualization and supervision: Kazem Hosseinzadeh; Methodology: Kazem Hosseinzadeh, Shima Haqqani and Fatemeh Rahimi Kian; Investigation: Kazem Hosseinzadeh and Mahsa Ebrahimi rahnamoo; Writing: Kazem Hosseinzadeh, Mahsa Ebrahimi rahnamoo.

Conflict of interest

The authors declared no conflict of interest.

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