



Can motivational interview techniques be used as an effective method on increasing the compliance of hypertensive individuals with treatment?

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Abstract

This systematic study was planned to analyse the academic works which have assayed the effect of motivational interview techniques on the increase of compliance of individuals with the treatment. Google academic, National Academic Net and Information Centre, Turkish Psychiatry Index, and National and International data base were used as data base. After scanning, 49 articles published between 1. Jan. 2007 and 31. Dec. 2014 in national and international juried journals and whose full texts could be accessed in electronic environment were found, two of which were excluded later due to the failure of full access to the texts. 7 articles were found among 47 articles which evaluated the effects of motivational interviewing techniques on the compliance of individuals with the treatment. The study was conducted only through 5 of them, which were determined to be suitable for the criteria of including to the study. When the papers in the scope of the research was analysed, it was determined that all of the studies were experimental, pre-tested and post-tested and conducted by using control groups. As the result of the study, it was verified that motivational interviewing techniques could be used as an effective method on improving disease perception, providing them with lifestyle changes, increasing their compliance with the medical treatment and maintaining the blood pressure management successfully for hypertensive individuals.

Keywords: Hypertension, motivational interview, Health Services, systematic review

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1. Introduction

Due to its high prevalence and the fact that it increases the formation of cardiovascular diseases risk, hypertension is an important health problem throughout the world. Behavioural risk factors such as population increase, aging, unhealthy diet, excessive alcohol consumption, lack of physical activity, excessive body weight, being exposed to constant stress also contribute to the increase in prevalence of hypertension [1, 2]. The increase in prevalence of hypertension should not be considered as an "individual problem". The incapability of keeping hypertension under control is one of the main causes of disabilities and early deaths throughout the world due to its significant effect on individuals and health systems. This situation has become a constantly increasing economic and social burden [3]. Medication adherence has a considerable effect on the course of the disease. Some methods which can help increase the medication adherence can be listed as: 1) informing patients both verbally and written, 2) encouraging patients on compliance with the treatment, 3) minimising the dosage and pill numbers 4) selecting medicines that can be tolerated well, 5) low costs as possible, 6) managing also families' compliance with the treatment 7) various reminder methods (computers, alarm etc.) [4].

Compliance with the medication is defined as patients' maintaining antihypertensive treatment for 12 months from the beginning of the disease [5]. The biggest problem in hypertension treatment is that people with hypertension are not able to comply with the treatment [6]. Incompliance with the antihypertensive treatment is a significant problem in taking the blood pressures under control in a community. Owing to the incompliance, excessive number of patients cannot obtain adequate amount of medical care, and have difficulty in ensuring lifestyle changes prescribed for hypertension [2]. According to the World Health Organisation data, half of the hypertension diagnosed patients quit taking hypertension related services within 1 year after the diagnosis and only half those who sustain the medical follow ups keep taking the medicines prescribed [6].

Incompliance with the antihypertensive treatment can result from adverse effects of medicine, lack of hypertensive symptoms, high costs of medicine and alternative medicine use. Compliance also requires patient motivation [7]. Motivation can be defined as "the possibility for an individual to take, maintain and stick to specific change strategies" [8]. Three important factors for motivation are willingness, capability and readiness. Willingness shows the importance of change for the individual, capability shows selfconfidence for the change. Readiness is in fact a priority problem [9]. Motivational interviewing technique, on the other hand, is a directive and counselee centred approach used to cause a behavioural change, helping counselees' discovering their ambivalent feelings and resolving them. Motivational interviewing, is defined as "a special way" of the aid given to provide individuals with understanding their problems and taking steps for the change. This method is an efficient way for individuals who are unwilling to change and are ambivalent [10].

2. Method

The study was conducted through scanning the related articles retrospectively. Through Google Academic, National Academic Net and Information Centre, Turkish Psychiatry Index, and International Health Sciences data bases accessed through Selçuk University internet Access net, and through search engines, BMJ Journals, EBSCO, Science Direct, Wiley Online Library, the key words "Motivational Interviewing", "Hypertension" and "Treatment Adherence" were scanned in English and Turkish. Articles published between 1. Jan. 2007 and 31. Dec. 2014 in national and international juried journals and whose full texts could be accessed in electronic environment were taken in the scope of the study. Thesis papers, scientific verbal or poster papers given in the congresses and articles with access restrictions were excluded. As a result of the scanning, 49 articles were found, 3 of which were excluded due to access limitations. 8 articles were found out of remaining 46 articles

which evaluated the effects of motivational interviewing techniques on the treatment adherence of hypertensive individuals. Out of these 8, 3 of them were not included since 1 of them was in Arabic and 2 of them did not bear the criteria to be included in the study. The study was conducted through 5 articles. In the study, each article was examined by: method used; research duration; intervention/s applied to the needed group; quality of the control group; appliances used and other initiations; data collecting instruments; criteria for including the study; criteria for excluding from the scope; implementations of the study and outcomes from the study. Criteria for including the study: Being published between Jan. 2007 and Dec. 2014 in national and international juried journals; Being able to access the full texts in electronic environment; Being an original research article; Sample group's being constitute of hypertensive individuals; Implementation of motivational interviewing; Evaluation of treatment adherence.

3. Findings

All of the studies included were experimental, pre-tested and post-tested and conducted by using control groups. In the study of Foster et al., 220 people were included in the study while in Ma et al. 120 people were examined and the studies lasted 6 months. In all of the studies included, randomly selected two groups as motivational interviewing group and standard care group were formed, While in some studies, an electronic medicine monitoring system (MEMS) was used [11, 13], Hypertension education booklets were handed out to the individuals in both experiment and control groups in Foster et al. (2013) study [14]. In addition to using the data collecting instruments such as treatment adherence scale, co-morbidity index, medicine following system data, in all studies, cycling BP values were measured and the results were compared. In Ma et al., (2014) in addition to indexes and scales used, Blood values measurement results (Serum keratin, total cholesterol; triglyceride, LDL, HDL, hungry blood sugar, full blood sugar) were consulted (Table 1).

Prior to the study Ma et al. (2014) conducted on Chinese patients, 12 clinical nurses were trained for 3 days in a motivational interviewing certificate program. After completing the applied program, each nurse implemented MI 8 times to 5 hypertensive patients (for 30-40 mins.). In Knafl et al. (2012) study, adaptive statistical modelling (ASM) was used, and data from electronic monitoring devise (EMD) and medicine monitoring system (MEMS) were consulted. In the study, in 3rd.-6th.-9th. and 12th. months, adherence self-efficiency and BP measurements were taken periodically. In the studies Ogedegbe et al. in 2007 and 2008 conducted on African-American or of black origins hypertensive individuals, MI was applied 4 times (in 3rd.-6th.-9th. and 12th. months). In Foster et al. (2013) study, while monitoring visits were organised to standard care group once in 2 months for a period of 10 months, for the experimental group MI was applied once in 2 months for 10 months. (Table2).

Table 1. Features of the studies examined in terms of instruments and methods

Scholars	Method	Duration of the research	Intervention/s applied to the group	Quality of the control group	Appliances used and other initiations	Data collecting instruments
Ma et al. 2014	Experimental study (Pre-Post Test, Control grouped design) (n=120)	6 Months	-Motivational Interviewing and Standard Care Services (n=60)	-Standard Care (n=60)	-	-Treatment Adherence of Hypertensive treatment scale (TAQPH); -General Self Efficacy Scale (GSES); -Life Quality Scale (SF-36); -BP measurements; - Blood values measurements (Serum Keratin, Total Cholesterol; Triglyceride, LDL, HDL, Hungry Blood Sugar, Full Blood Sugar)
Knafel et al. 2012	Experimental study (Pre-Post Test, Control grouped design) (n=190)	12 Months	Motivational Interviewing and Standard Care Services (n=95) - MEMS (n=70)	-Standard Care (n=95) -MEMS (n=71)	-Adaptive statistical modelling (ASM) -Electronic Monitoring Device (EMD)	-Treatment Adherence/ Compliance Self-Efficiency Scale; - Medicine Monitoring system (MEMS) Data; -BP Measurements
Ogedegbe et al. 2008	Experimental study (Pre-Post Test, Control grouped design) (n=190)	12 Months	- Motivational Interviewing and Standard Care Services (n=95) - MEMS	- Standard Care (n=95) -MEMS	-	-Charlson Comorbidity Index (CCI) - MEMS Data -BP Measurements
Ogedegbe et al. 2007	Experimental study (Pre-Post Test, Control grouped design) (n=190)	12 Months	- Motivational Interviewing and Standard Care Services (n=95) - MEMS	- Standard Care (n=95) -MEMS		- Charlson Comorbidity Index (CCI); - Morisky Treatment Adherence Scale ; - Duke Social Support and Stress Scale (DUSOCS); - Treatment Adherence/ Compliance Self-Efficiency Scale (MASES); -Self-setting Scale (TSRQ); -CES-D Depression Scale; - Medicine Monitoring system (MEMS) Data -BP Measurements
Foster et al. 2013	Experimental study (Pre-Post Test, Control grouped design) (n=220)	12 Months	- Motivational Interviewing -Self affirming approach -Positive Effect Approach -Hypertension Education Booklet (n=110)	- Standard Care -Hypertension Education Booklet (n=110)	-Electronic medical system	- Charlson Comorbidity Index (CCI); - CES-D Depression Scale ; -Positive and Negative Effect Scale (PANAS); -Medical Outcomes Social Support Scale (MOS); -Perceived Stress Scale (PSS) - Morisky Treatment Adherence Scale ; - Treatment Adherence/ Compliance self-Efficiency Scale (MASES); -Physical Activity Review Meeting (PAR); -BP Measurements

CES-D: Epidemiologic Research Centre-Depression Scale; MEMS: Electronic Medicine Intake Monitoring System; EMD: Electronic Monitoring Device

Table 2: Criteria For Including The Studies Examined, Features of Them In Terms Of Implemented Programs And Outcomes Of The Studies.

Scholars	criteria for including the study	criteria for excluding from the scope	Program Implemented	Outcome
Ma et al. 2014	- Consent to participate and being over 18; -Existence of essential hypertension diagnosed by Cardiology.; - Usage of at least one hypertensive medicine.	-Existence of secondary hypertension -Pregnancy	-Training nurses to implement motivational interviewing (for 3 days to 12 people) -Implementation of MI to 5 patients for 8 times by each nurse. (for 30-40')	-Number of patients in the end of the study (Experimental:54, Control:52) - Experimental Group treatment adherence ↑ - Experimental Group SBP; - Experimental Group DBP ↓
Knafel et al. 2012	-	-	-Monitoring Experimental and control groups via MEMS -Repetition of Adherence Self Efficiency Tests and BP measurements in 3rd. - 6th.-9th. and 12th.. months.	-Number of patients in the end of the study (Experimental:70, Control:71) - Experimental Group treatment adherence ↑ - Experimental Group SBP; - Experimental Group DBP ↓
Ogedegbe et al. 2008	- Written consent form to participate.; - African American or other black ethnicity; - being over 18; - Usage of at least one hypertensive medicine.; - Existence of hypertension diagnosis;-Values of blood pressure ≥140 / 90 mm Hg as the result after two consecutive office measurement , and in those with kidney problems and with diabetes ≥130 / 80 mm Hg -Fluency in English.	-	-MI implementations 4 times in every 3 Months (in 3rd., 6th. 9th. and 12th. Months) (for 30-40')	--Number of patients in the end of the study (Experimental:79, Control:81) -number of patients without MEMS data records (Experimental :16, Control:14), - Experimental treatment adherence ↑ -Both groups SBP and Experimental group higher in SBP values ; - Both Group DBP ↓
Ogedegbe et al. 2007	- African American or other black ethnicity; - being over 18; - Existence of hypertension diagnosis by ICD-9 codes; - Usage of at least one hypertensive medicine.; - Values of blood pressure ≥140 / 90 mm Hg as the result after two consecutive office measurement, and in those with kidney problems and with diabetes ≥130 / 80 mm Hg ; -Fluency in English	- Lack of written consent form or nonacquiescence to participate in the study. -Presence of cognitive dysfunction or a serious occasion determined by the GP.	- MI implementations 4 times in every 3 Months (in 3rd., 6th. 9th. and 12th. months) (for approx. 45') -Repetition of MEMS, BP Measurements, Adherence Self Efficiency Tests and BP measurements in 3rd., 6th. 9th. and 12th. months	-Number of patients in the end of the study (Experimental:86, Control:91) Number of patients monitored (Experimental:83, Control:81) - Experimental Group treatment adherence ↑ - Experimental Group SBP; - Experimental Group DBP ↓
Foster et al. 2013	- African American or other black ethnicity; - being over 21; -high level of blood pressure measurements minimum twice in last 1 year.; - consent form to participate	-	-Monitoring the control group once in 2 months for 10 months (telephone interviews for 30-40') -MI for the experimental group once in 2 months for 10 months	-Number of patients in the end of the study (Experimental : 110, Control:110) - Experimental Group treatment adherence ↑ - Experimental Group SBP; - Experimental Group DBP ↓

A: Experimental Group, B:Control Group, MI: Motivational Interviewing , SKB: Systolic Blood Pressure DBP: Diastolic Blood Pressure

4. Discussion

There is a part of hypertension in 9.4 million deaths or in the 16,5% of the total deaths every year. While 51% of these deaths occur due to stroke, 45% of them are due to coronary diseases (cardiovascular diseases) [16]. In hypertensive patients, diabetes and metabolic syndrome, are each independent risk factors for cardiovascular diseases. Among all the affected target organs, kidney is the one whose damage occur the earliest and microalbuminuria is a major risk element. In the majority of the hypertensive individuals, loss of renal function and microalbuminuria have been indicated. The most second common cause of late phase kidney failure is nephrosclerosis caused by hypertension. Although literature knowledge is little about the course of chronic kidney diseases in hypertensive patients, there is a significant agreement on the fact that when the renal failure occurs, coronary and cerebrovascular incident risks increase [17].

In study Ogedegbe et al. (2008) conducted, it was found that approximately 1/3 of them were diabetes, 8% of them had heart failure and 4% of them had kidney diseases. In the same study, Charlson comorbidity index scores of about half of the hypertensive individuals (45%) were calculated 3 and over and it was verified that heart failure, kidney diseases and target organ damage due to stroke in 20% of them were detected. In Foster et al. (2013) study, was detected in the 42% of the population diabetes, in 20 % experienced stroke were detected along with high ratio of comorbid diseases. In the same study, it was verified that more than half of the patients had not any information about the effects of hypertension on heart, kidney and brain and that these people demanded more information. In the study Schoenthaler et al. (2009) carries out, it was found that approximately 33% of the patients suffered from diabetes, 8% heart failure and 4% kidney diseases [18]. In the study of Hacıhasanoglu and Gozum (2007), in which they organised training and home monitoring to first stage hypertensive patients, it was determined that 35.3% out of 17 people with a disease requiring continuous medicine intake suffered from dyslipidaemia, 29.4% of them were diabetic, 23.5% had coronary artery disease, and 11.8% of them had endocrine disease (19). In the study (2005), which monitoring was applied for 2 years, and conducted in the US, in 77% of the hypertensive patients diabetes, in the 87% coronary artery disease, and in 80% hyperlipidaemia stories were detected [20]. In Ataman and Ceylan's study (2007), it was reported that 72% of the patients suffered from diseases other than hypertension. Among these disease diabetes mellitus 18,7(%), heart disease (%12,9), eye sight failures (%7.6) and kidney diseases (%6,7) were the main ones [21].

Detection of hypertension is a serious sign about the urge of important lifestyle changes. People need to have information why hypertension dangerous is, which steps should be taken to control it and what the other risk factors, which are comorbid of hypertension such as diabetes, are. There exist many studies in the literature which suggest that educational attempts increase the compliance of hypertensive individuals with medicine and improve healthy lifestyle behaviours along with decreasing blood pressure significantly [22, 27]. The fact that health education raises the individual awareness level has been proven in many studies. In individual and group health education programs, considering the readiness of the individuals, formation of permanent and terminal behavioural changes are aimed. Planning and conducting the individual behavioural changes, considering the level of individual readiness and change degree can be administered effectively through transtheoretical model and motivational interviewing. Motivational interviewing has been proven to be more effective compared to traditional methods [28]. In the studies which health education and effectiveness of motivational interviewing were evaluated, it was shown that health education made a difference in developing healthy behaviours, however, that efficiency and statistical significance level was higher in groups that motivational interviewing had been administered [29, 31]. In all of the studies under the scope, MI was administered to experiment groups and in all of the result, it was determined that treatment adherence among hypertensive individuals increased and that BP values decreased.

Compliance with the treatment is defined as patient's adherence to antihypertensive treatment for 12 month from the beginning of the disease [5]. The fact that people with hypertension cannot comply with the treatment is the biggest problem in hypertension treatment [6]. According to World Health Organisation data, half of the hypertensive patients quit taking hypertensive related services 1 year after the diagnosis and only half those who sustain the medical follow up keep taking the medicines prescribed. It is emphasised that while prescribing and administering follow ups, socio-cultural dynamics, cognitive functions, general health condition and other ongoing medicines of the patients should be taken into consideration and suggested that a certain monitor frequency should not be determined, however, close monitoring for the first 3 months and recalling them to checks in 6 months unless there are any problems should be administered [6]. Since it may cause life threatening complications, neglecting hypertension may result in dangerous outcomes while effective blood pressure management makes significant contribution to lessen heart failure heart attack and stroke prevalence [1].

In all of the studies under the scope, an increase in the treatment adherence among hypertensive individuals in the groups MI is observed. In the study Ogedegbe et al. (2008) conducted, while the variation in prescribed medicine treatment adherence was calculated -12.3 % in standard care group, in motivational interviewing group, the variation was calculated +0.5 % (MI group pre test: 55.4%, MI group post test: 56.9%) and it was verified that administered technique was effective on increasing treatment adherence in hypertensive patients. When the results of hypertension treatment adherence scale (TAQPH) in Ma et al. (2014) are examined, it is seen that motivational interviewing technique is effective in the level of statistical significance on increasing medicine treatment adherence and physical activity level and on decreasing cigarette and alcohol consumption comparing to control group (Table 2).

5. Results and Suggestions

When the studies under the scope are examined, it can be observed that motivational interviewing technique can be used as an effective method for improving disease perception and medicine treatment adherence, providing lifestyle changes and sustaining blood pressure management successfully among hypertensive patients. Motivational interviewing technique can also make significant contributions to improving care standards, decreasing the number of application and bedding times of patients as well as the load of chronic patients and costs if administered more comprehensively to hypertensive and other chronic diseases.

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