Final Report of

“Developing Suitable Model for Self-care of Hypertensive Patients”

Principle Investigators:

Masoumeh Sadeghi, MD

Associate professor of cardiology

Head of Cardiac Rehabilitation Research Center; Research Deputy of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences

Mansoor Shiri, MD, MPH

Health Education manager, Isfahan Provincial Health Center

Isfahan University of Medical Sciences

In collaboration with:

Hamidreza Roohafza, MD

Research Manager of Cardiovascular Research Institute

Isfahan University of Medical Sciences

Under supervision of

Nizal Sarrafzadegan, MD

Professor of cardiology

Director of Isfahan Cardiovascular Research Institute

Isfahan University of Medical Sciences

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Members of the Steering Committee

A- Scientific Committee:

- Nizal Sarrafzadegan; Director of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Kamal Heidari; Head of Isfahan provincial Health Center, Vice-Chancellor of Isfahan University of Medical Sciences
- Masoumeh Sadeghi; Head of Cardiac Rehabilitation Research Center; Research Deputy of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Mansoor Shiri; Manager of Health Training, Isfahan provincial Health Center, Isfahan University of Medical Sciences
- Hamidreza Roohafza; Research Manager of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Alireza Khosravi; Head of Hypertension Research Center; Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Hossein shahnazi; PhD student in the field of Health Education; Health Faculty of Isfahan University of Medical Sciences
- Abbasali Javadi; President of Isfahan Province Medical Council
- Gholamhossein Sadri; Former Health Deputy of Isfahan University of Medical Sciences
- Katayoun Rabiei; Head of Evaluation Unit of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Noushin Mohammadifard; Head of Quality Control Unit of Cardiovascular Research Institute, Isfahan University of Medical Sciences

B- Executive Committee :

- Masoumeh Sadeghi; Head of Cardiac Rehabilitation Research Center; Deputy Research of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences
- Mansoor Shiri; Manager of Health Training, Isfahan provincial Health Center, Isfahan University of Medical Sciences
- Hamidreza Roohafza; Research Manager of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences

- Sousan Fadayi; Health Education Expert, Vice-chancellery for Health of Isfahan University of Medical Sciences
- Safoora Yazdkhasti; Expert in Isfahan Cardiovascular Research Institute
- Pejman Derakhsh; Expert in Isfahan Cardiovascular Research Institute
- Ramesh Hosseinkhani; Manager of cardiovascular diseases; Vice-chancellery for Health of Isfahan University of Medical Sciences
- Ali Parsa; Head of Isfahan District Health Center No. 2
- Ahmad Jamshidi; Head of Isfahan District Health Center No. 1
- Gholamhossein Sadri; Former Health Deputy of Isfahan University of Medical Sciences
- Mahshid Ahmadian; Health Deputy of Isfahan District Health Center No. 2
- Shamila Masroor; Head of Khajoo Healthcare Center
- Abbas Nekoobahr; Head of Khane-Esfahan Health Center
- Zarrin Tansaz; MSc in Nursing, Alzahra Healthcare Center
- Parisa Dehghani; Nurse, Khane-Esfahan Health Center

Collaborator institutions:

- Health Education and Promotion Office of Health Ministry
- Vice-chancellery for Health and Isfahan Provincial Health Center
- Non-communicable Diseases Management Center of Health Ministry
- Department of Health Education, Vice-chancellery for Health of Isfahan University of Medical Sciences
- Isfahan District's Health Center No. 2
- Isfahan District's Health Center No. 1
- Vice-chancellery for Treatment of Isfahan University of Medical Sciences
- Vice-chancellery for Food and Drug of Isfahan University of Medical Sciences
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Table of Contents

List of Tables

Executive summary

In May 2011, the Office of Health Education and Promotion of Ministry of Health and Medical Education defined a project: **"Developing Suitable Model for Self Care of Hypertensive Patients".** The Heart Research Center of Esfahan which is a collaboration center of WHO appointed to do the job.

The objectives of the project and the expectations of the Office of Health Education and Promotion and WHO were presented by their representatives-Dr Rakhshani and Dr Sajedinia in Heart Research Center of Esfahan. The Health Education Unit of Esfahan Provincial Health Center appointed as partner in the project. To utilize the experiences in this field some of the well known technical and executive experts were interviewed about the present situation of hypertension care in Iran and in Esfahan. The subjects such as quality of care, units and centers providing it and its self-care services were discussed. According to them, there was not a well-organized comprehensive program to promote hypertension self-care in Iran; the activities for teaching about the methods of self-care in hypertension were very limited. There are no active NGOs to promote self-care of hypertension in an integrated way.

In health centers and health houses of PHC system some services to control hypertension and teaching its self-care are provided. We searched about the history of activities about hypertension that had been conducted by Ministry of Health during previous years. The viewpoints of experts as well as steering committee members helped to design an appropriate model of self care for hypertension. The first model which worked on was BAZNEF. Because of some shortcomings, the steering committee decided to develop a model which would be feasible and appropriate for different conditions of Iran. Some of the conditions such as government and private sectors delivering services or services which are supposed to be delivered in urban and rural areas. In this model stakeholders' analysis to develop suitable messages plays a role. Also a comprehensive system of monitoring and evaluation of activities is added to the model to complete it. This model is developed because of good cooperation of scientific and executive sectors- Heart Research Center and Provincial Health Center -of Esfahan University of Medical Sciences.

General principles

Self-care programs cover patients and their families. Caring for patients by themselves and their families is of special interest due to the following reasons:

- **Health approach changing from medical care toward health care**

  Change in the pattern of diseases from acute to chronic, and change in the perspective of cure to care has caused dissatisfaction arising from technology development, non-personal medical care, growth of non-specialist's knowledge, the tendency to exert personal control in health issues while cooperating with specialists and the need to control self-care expenses.

- **Self-care: triggering the potential ability of individuals to care for themselves**

  When facing with diseases, individual-oriented health promotion model is a health problem. There are 5 major resources available to people for maintenance and promotion of health including the people themselves, other ordinary people, specialists, available information, and the environment.

  This future perspective for health care involves a six-step model in which people take action toward solving their health problems using their own personal resources. If this self-care does not solve the problem, then, family and friends, self-help groups and networks for health care, and finally, health professionals, who act as facilitators, collaborators, and the source of giving instructions, respectively. According to Ferguson, "information era proves the legitimacy and importance of self-care".

Definition and description of self-care

In this program, our acceptable definition for self-care is derived from self-care theory of *Dorothea Orem*. Orem defines self-care as: "deliberate, learned, and purposeful practice of activities that individuals initiate and perform to maintain life, health and well being of themselves and their family".

Self-care is a part of daily life. It is performed by individuals to supply, maintain, and promote their well-being which involves caring for children, family, friends, neighbors, and local communities.

Self-care includes learned, deliberate, and purposeful actions which people do for their children, their family, and themselves in order to stay healthy, to maintain their mental and physical health, to satisfy their social and psychological needs, to prevent diseases and events, to care for illnesses and chronic conditions, and also to maintain their well-being after an acute disease or after discharging from hospital.

Self-care seems to involve the following areas: health promotion, lifestyle modification, disease prevention, symptom assessment, health maintenance, disease treatment, and rehabilitation. Self-care does not replace specialized and organized care, rather, complements it and determines the level and the manner to use it.

Self-care mainly refers to the interaction with health care system rather than the independent from specialized health system. It depends on the culture and situations and encompasses the span of action and selection. Self-care focuses on aspects which are controlled by individual. The most important achievements of enhanced self-care is that people make proper decisions about correct use of health care and determining and performing self-care practices appropriately.

Self-care obviously increases individual's efficiency and skills and must not be taken as parts of health practice which no one tends to do or as such that the government cannot train enough professionals to do health practices. Through self-care, people try to prevent diseases and disabilities and promote their health status and also it is one of the major concepts emphasizing on positive and healthy behavior.

Pressure of the people around, "social influence", and "social support", along with the individual's better estimation of success, are effective in his/her motivation. People tend to do things in which they are likely to be successful, thus, perceived self-efficacy has a significant effect on individual's motivation. After being motivated, the individual must have sufficient power for a deliberate and competent action. In short, the individuals must meet following criteria for an empowered and deliberate selection:

1- They must have enough information on the subject matter (knowledge). In order to achieve this knowledge, they require adequate health education, appropriate, valid and accessible information, and the skill to take advantage of health resources.

2- They must have the ability to take effective action (self-efficacy). The "perceived control" means whether they feel that they can control their affairs and be effective in their destiny, in general and in health-related area. The "self-concept" is the set of thoughts and emotions that one has of oneself.
3- Once the knowledge and self-efficacy are obtained, they must acquire necessary skills for assessment of situations, decision-making, and acting. The most important skills include decision-making problem-solving, self-awareness, communicative skills, taking action, and forming network of associates and health professionals. These skills are totally acquired and learnable. Besides life experiences and individual's family environment, these skills can be also acquired through certain organized programsof life skills.
4- At the final stage, one with adequate motivation, knowledge, control, self-efficacy, and skill needs environmental supports in order to turn these skills to a healthful behavior.

The important point is that facilitating and supporting environment plays an essential role in acquisition and enhancement of the other three criteria, i.e., knowledge, self-efficacy, and skill, and also in establishment of demand for self-care and contextual agents. In this respect, the role of social support network including families, health professionals, national system for healthcare, legislative system, and non-governmental and international organizations.

General objectives of a self-care enhancement program may be a combination of following options:

- To invoke appropriate motivation in an individual
- To establish health knowledge and enhance the individual's health education
- To boost feeling worthy and the individual's perception of him/herself
- To enhance the individual's self-efficacy belief
- To establish a suitable interaction between receivers and providers of health service
- To establish necessary life skills proportionate to the subject (such as decision-making, problem-solving, taking action, etc.).

While planning self-care programs for hypertension, the best strategies must be taken and included in the programs with regard to the target group, type of behavior, and desired outcome. Selection of the most appropriate strategies and the way of including them in the program are professional tasks related to technical knowledge of health psychologists and behavioral science specialists, and health promotion professionals. Therefore, the second approach of these self-care programs is training and conducting the professionals to the above areas and employing them in health system in order to make the programs more effective. In this respect, good self-care programs usually have a group interaction component in a form of self-help/support/training group. Thus, supporting the formation of self-help and support groups is the other approach of those programs.

Self-care service provider team for patients with hypertension

There is a serious need for contribution of private sector in "hypertension self-care" program. Institutions and people that can contribute to this program are as follows:

- Private doctors' offices
- Medical clinics (public and private)
- Psychological counceling centers
- Smoking cessation clinics and de-addiction centers
- Diabetes and obesity clinics
- Laboratories
- Pharmacies

The role of self-care service provider team for patients with hypertension

Physicians are among the very important components of programs for enabling people to care for themselves, who may affect the objectives of self-care programs in two ways (positive or negative). Therefore, the presence of physicians with positive attitude toward these programs and sense of responsibility toward people and hypertension self-care program can be a facilitator.

Obviously, physicians must first acquire necessary skills in order to provide self-care service and they must believe that self-care can improve the status of patients' visits to offices, decrease number of patients (unnecessary visits), improve specialty medical services, and finally reduce health-related costs. It is clear that physicians have a supportive role in self-care programs.

Main objectives of the program for the self-care team

1. To increase the support for capacity building for hypertensive patients and their families
2. To increase the sense of responsibility in physicians so that they contribute to hypertension self-care program

Specific objectives

1. To increase knowledge and skills of the self-care team on life skills required for supporting self-care of patients with hypertension and their families
2. To invoke and enhance the sense of responsibility in self-care team toward self-care program
3. To establish and improve a positive attitude in self-care team toward self-care program
4. To increase the contribution of self-care team in making support networks for patients in self-care program

Services which self-care team can provide are as follow:

1. To refer patients to competent individuals (centers) in order to be familiar with the concept and importance of self-care
2. To familiarize patients with levels of specialty medical services related to hypertension
3. To familiarize patients with concepts of economic/emotional burden of specialty medical services related to hypertension
4. To advise patients to learn appropriate life skills
5. To familiarize patients with support (self-help) groups in order to acquire training and supportive services of self-care program related to hypertension

6. To advise patients to participate in training and counseling sessions on self-care
7. To support the improvement of self-confidence and sense of responsibility in patients to participate in self-care programs
8. To advise patients to acquire evidence-based information on self-care
9. To advise patients to acquire necessary training on methods of using available information sources on self-care
10. To help patients to complete their self-care file (booklet)

Services which must be provided to self-care team (support services)

1. Training life skills
2. Attracting contribution from self-care team regarding the importance of self-care
3. Establishing associations supporting self-care programs
4. Attracting the support of medical education planners to fit training self-care support in medical students' curriculum
5. Training the way of individual/group consultation
6. Training the significance and the way of using available information sources
7. Providing required facilities for using available information sources (subscription to scientific magazines/subscription to scientific groups/facilities of internet lines)
8. Providing reward systems for self-care team which actively contribute to the self-care support program
9. Providing feedbacks related to results of executing the program
10. Granting valid certificates for participation in self-care program or for passing self-care training courses

Monitoring and evaluation program

1. Conducting KAP studies on treatment centers' patients on concepts and importance of self-care/ levels of medical services, etc.

2. Evaluating percentage of treatment centers' and medical clinics' patients referred to classes for life skill education
3. Evaluating percentage of treatment centers' and medical clinics' patients who become members of support (self-help) group

Evaluation indicators

1. Difference in treatment costs for each self-care team
2. Difference in treatment results of patients in each self-care team
3. Satisfaction rate of each self-care team, before and after execution of the program
4. Satisfaction rate of each self-care team's patients, before and after execution of the program
5. Percentage of each team's patients referred to classes for life skill education
6. Percentage of each team's patients who become members of support (self-help) group

Indicators of program success

1. Knowledge and skills improvement of patients in each self-care team
2. Quantitative increase in specialty services in each self-care team
3. An increase in application of available information sources in patients of each self-care team

Literature review

Hypertension (HTN) is currently one of the risk factors of cardiovascular diseases resulting in death. Almost 13% of deaths and 6% of disabilities arise from this risk factor (1, 2). If not treated, hypertension may lead to stroke, coronary artery disease, heart and renal failure, and other chronic diseases (3, 4). Previous reports revealed the quick increase in prevalence of hypertension in developing countries (5-8). Based on the seventh report of Joint National Committee (JNC), systolic blood pressure more than 140mmHg and diastolic blood pressure more than 90 mmHg are considered as hypertension and the hypertension more than 130/80 is defined as prehypertension stage (9). Studies have shown that many people with hypertension are unaware of their illness. Moreover, despite medical recommendations, blood pressure is not controlled in all people who are aware of their hypertension (10-13). A study conducted on the prevalence of hypertension in Canada on 26 million adults for more than 20 years identified 6 million people (23%) as having high or low blood pressure and 418thousand people as having hypertension who did not know it before the study (14).

Today, health policy-makers attempt to design methods for increasing knowledge on hypertension, its treatment and control. Secondary prevention through drugs and healthy lifestyle can have a great impact on reducing relapse of the disease. One of the secondary prevention techniques to treat non-communicable diseases is the self-care technique (15). According to WHO, self-care is a set of activities that individuals, families and communities undertake in order to enhance health, prevent or limit diseases, and restore health. These activities are derived from knowledge and skills of both professionals and lay people. Patients in self-care programs are expected to be aware enough of their condition, identify a normal state in their life, know when they need more help, and have sufficient information about the necessity and way of administration of medications. They must also monitor their symptoms in order to do routine tests at a proper time without referring to their physician (15).

Orem introduced the theory of self-care for better explaining self-neglect and justifying nursing interventions (16). Therefore, self-neglect is a type of failure in self-care resulting in inappropriate performance and feeding, failure in doing tasks related to prevention or control of diseases in a way that influences life and feeling of well-being (17). Orem introduced self-care agency (SCA) as the engine and the ability to do self-care. She believed that SCA was activated with the help of internal and external variables of an individual and lack of SCA was one of the

factors increasing self-neglect. Orem also spoke of another notion known as "self-care requisites" (16, 18). There is another theory in this regard called "common sense model" which focuses on the questions individuals ask themselves at the time of illness and its subsequent cognition and agitation. This cognition encompasses a set of processes which are affected by individual's personal, social, and environmental contexts (19).

In order to establish self-care programs in a community, changes must be made to its health and social systems to transmit knowledge and experience to patients by healthcare staff. Therefore, physicians, nurses, pharmacists, social psychologists, and people involved with patients perform their best practice in relation to the patients' needs, information, and communications. Social and health systems must be enriched with information on self-care so that patients or their first-degree relatives can access to complete and up-to-date information. The role of government and governmental organizations regarding self-care is to provide the ground for self-care to be effective in individuals' health system in terms of priorities and all the beneficiaries take action toward making appropriate strategies.

Hypertension is among the diseases which self-care programs are executed for them. In various studies with different models, self-care has been associated with understanding hypertension, administration of drugs, having a healthy lifestyle, identifying symptoms, and measuring blood pressure (20,21). A study in Birmingham, England, on 196 patients with hypertension in 2008 showed that these patients used different methods of self-care including complementary therapies, measuring blood pressure at home, acceptance and better administration of drugs by patients. The results of the above study indicated that most of the therapies were complementary and the self-care programs were effective in treatment of the patients (22). Another study examined the performance of a team of trained people who taught the patients and their families in a 90-minute course the importance of blood pressure control, non-medical therapies including nutrition, weight control, smoking prohibition, and encouraged the patients to take the medications. It was found that the use of a team (nurse and pharmacist) was effective in controlling blood pressure and treating hypertension (23).

Cappuccino et al. conducted a meta-analysis study on different models of self-care for measuring blood pressure at home. In the above study, 18 randomized clinical trials on 1359 people (measuring blood pressure at home) and 1355 people (control group) were included. Duration of

interventions varied between 2 and 36 months, patient training, and also measuring blood pressure by the patients were performed in a hospital, workplace, or general physician's office. Measurement of blood pressure varied between twice a day and twice a week. The results showed that systolic and diastolic blood pressure of patients in intervention group was significantly less than those of control group. Furthermore, the number of patients with controlled blood pressure in intervention group was more than that in the control group. The interesting point was that blood pressure measured at home was more under control than that measured at doctor's office (24).

In their study, Leiva et al. assessed patients with hypertension in two common treatment and self-care groups. The patients in self-care group were trained by an educated nurse who passed Motivational Interview course and a clinical psychologist. Each patient was visited 3 times in a 24-month intervention period. The interventions were designed based on the 5 components of Health Belief Model (25) including taking medication reminder box, family support, daily measurement of blood pressure and taking medications and recording them in the blood pressure and medications reminder table, and simplifying dosage of drugs by a pharmacist for better recall of taking medications. The first visit was set in the first month, during which the interventions of taking medication reminder box and family support were taught to the patients. In the second visit in the third month, interventions of simplification of drug dosage, family support, and blood pressure control were carried out by the patient. The third visit was performed in the ninth month, during which interventions of family support and blood pressure control were carried out by the patient. In each visit, the patients were asked about the occurrence of events related to hypertension. Furthermore, the statistics of diseases were regularly received from the Centers for Disease Control (CDC). The above study is currently being implemented and its results have not been yet published (26).

Studying the condition of Diseases

There is not considerable information on self-care in Iran. In a study published in 2009, a survey was conducted on the viewpoint of the people in southern Tehran on self-care. A population of 1200 people over 15 years old was selected using cluster sampling. Most of the participants were eager and active in self-care practice, however, they expressed they had not had knowledge about self-care (55%), though a few percent (5%) performed self-care properly (27). Another study on 150patients who were exposed to an inappropriate hemodynamic condition , especially their electrical balance and key condition, due to systolic heart failure, showed creatinine higher than 5.1 mg/dl, sodium disturbance, and potassium disturbance in 34.4%, 16.5%, and 9.1% of patients, respectively. According to that study, training self-care to elderly was necessary and improved their life quality (28).

In the Healthy Lifestyle program conducted as part of Isfahan Healthy Heart Programs (IHHP) by Isfahan's Cardiovascular Research Center, 900 patients with vascular diseases were studied and questioned about knowledge, attitude, and performance toward their disease, symptoms and risk factors, administration of drugs, nutritional status, physical activity, and visiting a physician. The patients were provided with necessary training about different cardiovascular diseases, causes or relapse of these diseases, risk factors, ways of control and prevention, appropriate medical therapies, and non-medical therapies including lifestyle improvement, proper nutrition, smoking cessation, increasing physical activity, and how to deal with stress. The training lasted 4 years, then, the patients were studied again. At the beginning of the study, patients suffering from diabetes, hypertension, obesity, high low-density cholesterol (HDL-C), hypertriglyceridemia, high cholesterol comprised 19%, 20%, 25%, 89%, 60%, and 70%, respectively. The amount of used secondary prevention drugs varied from 10% to 56%, based on the type of drugs. Although all the aspects of self-care programs were not examined in the above study, it was shown that the training program on drugs could affect self-care programs positively (29). Another study on Isfahan Healthy Heart Program explored the effect of comprehensive programs of IHHP on development of awareness, attitude, and treatment of hypertension. The study showed that the prevalence of hypertension reduced from 20.5% to 16.5%. The awareness and recovery of the patients in urban and rural areas increased considerably, especially in fat people and those over 40 years old, which indicated the positive effect of self-care in a community (30). Tehran Lipid and Glucose Study showed the prevalence of hypertension for men and women as 23% and 20%, respectively (31).

Review of the current condition of prevention and control of hypertension in Isfahan

The condition of prevention and control of blood pressure in healthcare centers and health bases in the city is desirable neither in collecting statistics nor in providing health care. Isfahan with a population of 2 million people has 53 healthcare centers and 120 health bases . Many people do not go to these centers regularly, even those women who should go to these centers regularly (15-49 years old), although their heart, lungs, and blood pressure should be examined annually, according to the state instruction. These examinations are totally passive, i.e., people themselves should go to the healthcare centers. Screening had to be conducted every 3 years in rural areas. It was done in 2004 and 2007 completely; however, it was carried out incompletely in 2010. In healthcare centers and in most health bases, cardiac examination and control of blood pressure are done by or under supervision of physicians. These centers and bases usually do not have any medical assistant, mainly nurses, other than physicians and this causes serious problems for the training program of empowering the patients including patients with hypertension or diabetes.

Healthcare centers in Isfahan which were founded in 2009 mainly concern the screening and controlling diabetes. Because of the structure of these centers and risk factors which are common in many non-communicable diseases like hypertension and diabetes and include sedentary lifestyle, obesity, inappropriate nutrition, and low ability to control mental stress, these centers can be very effective in prevention and control of hypertension in the population under their cover. Following people work in most of these centers: Physicians, nurses, dietician, clinical psychologists, and physical education expert.

So far, 26 such centers have become operational in Isfahan, of which, 6 are public and the rest are private (mainly charity). There are currently 300 patients with hypertension and 600 patients with diabetes and hypertension together in health centers. Among these health centers, the most active ones are Shahid Rezaeian and Amirhamzeh. A screening done on 200,000 people in these centers revealed the prevalence of hypertension as 28%. Aside from healthcare centers, health bases, and health centers which were mentioned above, there are numerous physicians' offices, clinics, health service providers, counseling centers for nutrition and psychology in the city,

which are private. Regarding the interests of these health-related units, they may be used in the program for prevention and control of cancers, in the way that the patients in need of professional treatment or counseling would be referred to those units.

Considering the silent nature of hypertension on one hand, and passive action of healthcare centers especially urban centers on the other hand, private offices, general physicians, internists, cardiologists, nephrologists, etc. in most of cities visit many people with hypertension.

Therefore, in case of ignoring these private units, a considerable number of patients remain out of the self-care cycle in hypertension self-care program. Furthermore, as the measurement of blood pressure with digital sphygmomanometers at home is common among families, the information provided by those units cause hypertensive people to be screened from the community and to follow up and even to do self-care.

Moreover, many offices, factories, and industries provide checkups for their employees in the workplace as part of industrial medicine program. Control of blood pressure is done in such places although no self-care program is run.

Necessity of the Study

CVDs are the most common causes of deaths in Iran, whose prevalence is increasing as they cause 46% of deaths (32). Different studies refer the relative risk for cardiovascular events to diverse risk factors. In Isfahan Cohort Study (ICS), the highest relative risk for cardiovascular events was attributed to hypertension (33). Therefore, cardiovascular events can be prevented considerably by controlling hypertension.

A study on the data collected in IHHP, frequency of awareness, treatment, and control of hypertension after interventions, increasing awareness, and improvement of attitude and performance of healthcare personnel and the community in Isfahan comprised 49.8%, 43.8%, and 15.8%, respectively. Although the above study showed an improving process during 2001-2007 and the control rate of hypertension increased from 7.1% to 15.8% (34), this rate was so small for reduction of diseases caused by hypertension. Therefore, the present study is conducted to provide a self-care model for hypertensive patients regarding the high prevalence of

hypertension in Iran and its low frequency of controlling it. This study is based on training the measurement of hypertension, taking medications on time, observing the diet, doing physical activity, avoiding smoking, and managing stress. It aims to examine the effect of self-care interventions in controlling hypertension, administration of drugs, and incidence of complications caused by hypertension, at different levels of healthcare systems.

Stakeholder analysis

Table 1: Classification of stakeholders in hypertension control program

Order	Main groups of collaborators		Subgroups
1	Beneficiaries	Primary	People prone to hypertension, hypertensive patients, families of hypertensive patients
		Secondary	Isfahan University of Medical Sciences, insurance organizations, clinics of offices and factories, treatment deputy, Non-communicable Diseases Management Center of Health Ministry, Health Education and Promotion Office of Health Ministry, Office for Nutrition Improvement of Health Ministry, Cardiovascular Research Institute, retirees associations, nursing homes, Imam Khomeini Relief Committee (Foundation), pharmaceutical companies, physician offices
2	Decision makers	Legislators	Members of Islamic Council of Isfahan City
		Policy makers	Chancellor of Isfahan University of Medical Sciences, deputies of health, treatment, and food and drug, Medical Education Development Center of the university, Head of Non-communicable Diseases Management Center of Health Ministry, Director General of Health Education and Promotion Office of Health Ministry, Mayor, President of IRIB, Medical Council, Nursing Council
		Executors	Isfahan's Health Center No. 1 & 2, municipality, clergymen, city Offices (public and private), factories, IRIB, private sector's health service providers, pharmacies
3	Partners		Deputies of health, treatment, and food and drug, Cardiovascular Research Institute, Medical Education Development Center of the university, Medical Council, Nursing Council, hospitals of the city, organizations providing healthcare services, charity unions, IRIB, private sector's health service providers, pharmacies
4	Opponents		Unsafe food industries (ready foods, potato chips, sausage, and cold cuts), pizza and sandwich shops, fast food shops, tobacco company and industry

Table 2: Analysis of stakeholders in hypertension control program

item	Main groups of collaborators		Beliefs of each group / knowledge and attitude of the group about the subject
1	Beneficiaries	Primary	It seems that people who are prone to hypertension do not have necessary knowledge and attitude toward the necessity of diagnosis and control of hypertension. There is a serious ambiguity about the knowledge and attitude of hypertensive patients for continuation of hypertension control, and this is true for families of hypertensive patients.
		Secondary	The existence of the attitude necessary for planning and performing hypertension control program in all secondary beneficiaries is questionable; however, their knowledge is of a high level.
2	Decision makers	Legislators	Most of the members of this group do not have the attitude necessary for the program; however, their knowledge is of a medium level.
		Policy makers	Members of this group may have the necessary knowledge for administrative policies of the program although they do not seem to have adequate attitude.
		Executors	It seems that the municipality, offices, factories, and clergymen do not have the required knowledge and attitude toward the necessity for execution of this program.
3	Partners		This group has the required knowledge and attitude on the program.
4	Opponents		This group does not have the necessary attitude for the program; however, their knowledge is probably of a medium level.

Proposing suitable model to deliver hypertension self-care

The first model presented in this program was designed based on BASNEF model:

Once the initial contract of self-care program for patients with CVDs was formulated, the executors and the steering committee designed the BASNEF model after reviewing the literature and examining the condition of cardiovascular diseases. The model was studied in a meeting held at the general manager's office for Health Education and Promotion of the Health Ministry on Aug. 17th, 2011. According to the clause 7 of the meeting minute, it was decreed that the model of changing behavior must be replaced by an executive model for hypertension self-care.

The operational model proposed for hypertensive patients self-care

With regard to the current condition of healthcare providing systems in Iran and Isfahan Province, and after examining the current condition in Iran and literature related to cardiovascular diseases self-care especially in case of hypertension, the executive model designed for increasing and improving hypertensive patients self-care was written as follows:

First of all, the executors in coordination with scientific and executive collaborators, determined the centers that hypertensive patients should go for controlling their disease. The hypertensive patients go to public or private healthcare providers.

The public healthcare providers include: urban and rural healthcare centers, urban health bases and rural health houses, outpatient hospitals and clinics, clinics of offices, factories, and organizations, and if any, healthcare centers.

The private healthcare providers include: doctor's offices, private clinics (general physicians, internists, cardiologists, nephrologists, neurologists, etc.), private hospitals, drugstores, and counseling centers for nutrition, psychology, and smoking cessation.

Furthermore, a part of patients are in the community and can be identified through nongovernmental organizations (NGOs) such as; Kidney Patients Association, health liaisons, Heart Friends Association.

In urban healthcare centers, physicians are the main executors of this program and the health professionals and technicians carry out the follow-up and monitoring.

In rural healthcare centers and health houses, healthcare is done by physicians and follow-up is performed by healthcare social workers. In healthcare centers, physicians make necessary recommendations, then, nurses, and experts in nutrition, physical education, and psychology provide required consultations and follow up the physicians' recommendations.

In clinics of offices and factories, physicians and technicians do the task. In hospitals, physicians, nurses, and pharmacists have basic roles in this program.

In private sector, except a number healthcare centers, self-care is not performed at all or done incompletely.

In the first stage of empowering the service providers in self-care program (physicians and specialists in nursing, nutrition, physical examination, and psychology) is conducted in order to detect hypertension, examine the side effects of hypertension, counsel for medical and non-medical treatment, measure blood pressure properly, and, if necessary, refer patients to other healthcare providers.

Empowering the health-care providers

According to the curriculum in the appendix, the way of treatment and follow up is trained besides the training skills. All the trainings are on the basis of relevant action plans.

The hypertensive patients will come to this center to do self-care programs when they are notified by means of public recall (information mobilization), general physicians who are aware of the self-care system, or other healthcare centers.

Self-care programs begin when hypertension (higher than 140.90 mmHg) is diagnosed in a patient. At first, the relevant physician examines a given patient and asks about his/her experiences of the disease, then, the presence of hypertension is confirmed by the physician. After that, the physician teaches the way of measuring blood pressure and presents necessary information on the symptom-free nature of hypertension and its irreversible complications if not

treated, the fact that hypertension is a lifelong disease which requires to be controlled, and recommendations aboutmedical and non-medical therapies.

Non-medical recommendations are presented to the patients by specialists in nursing, nutrition, physical education, psychology, and healthcare.

The patients' medical records are completed by a nurse or a relevant specialist, and their brief patient information in a small card to be always carried by the patient. Then patients' next visit is arranged.

If necessary, the patients will be referred to the relevant specialists based on the protocol. The patients' phone and cell phone numbers are recorded to be used for follow-ups. The patients' follow-up is done by a nurse or a relevant specialist.

Patients may be referred to cardiologists, nephrologists, endocrinologists, hospitals, counseling centers for addiction cessation, nutrition, and psychology. If necessary, patients are referred to rehabilitation centers and laboratories.

When should patients go to the center?

Once hypertension is diagnosed in patients, they come to this center and the next visits take place according to the instructions.

The following facilities are required for execution of the program:

1) Human resources: physicians, nurses, nutritional consultants, and mental health consultants. In the absence of above professionals, at least a physician who has been empowered in blood pressure control, medical and non-medical therapies, nutritional consulting, addiction cessation, and physical activity is required.
2) Physical environment: training room, follow-up room, and examination room.
3) Equipment: patients' manual or electronic records, sphygmomanometer, computer, telephone, examination equipment, interactive voice response (IVR), and cell phone (if possible).

Definitions:

Hypertensive patients: Hypertensive patients are those whose blood pressure is at least 140/90 mmHg.

The follow-up method: by means of telephone, the index card, SMS, email, health liaisons, and face-to-face visiting.

Strategies of interventions:

1. Self-monitoring
2. Training the hypertensive patients and the trainers
3. Attracting comprehensive support after analysis of collaborators
4. Interventions in other projects like diabetes control in healthcare centers.

Sharing model with expert committee

Once the coordination meeting was held at the general manager's office for Health Education and Promotion of the Health Ministry for the program of empowering patients with cardiovascular diseases (hypertension) on Aug. 17th, 2011 and regarding the approvals on consulting with experts on this ground, meetings were held with executors of this program (Dr. Masoumeh Sadeghi, Dr. Hamidreza Roohafza, and Dr. Mansoor Shiri) with some experienced colleagues who are as follow:

1. Dr. Gholamhossein Sadri; Former Health Deputy of Isfahan University of Medical Sciences
2. Dr. Tahereh Samavat; Director of Cardiovascular Program of in Non-communicable Diseases Management Center of Health Ministry
3. Dr. Masoud Zandieh; Former Director of the Department of Prevention and Control Diseases, Health Deputy of Isfahan University of Medical Sciences
4. Dr. Reza Fadaie; Director of the Team for Fight Against Diseases, Health Deputy of Isfahan University of Medical Sciences
5. Dr. Hamidreza Tolouei; Former Technical Deputy, Health Deputy of Isfahan University of Medical Sciences
6. Dr. Ramesh Hosseinkhani; Manager of cardiovascular diseases; Vice-chancellery for Health of Isfahan University of Medical Sciences
7. Dr. Shahram Rafieifar; Counselor to Director General of the Department for Family and Population Health
8. Dr. Nizal Sarrafzadegan; Director of Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences

After discussing and exchanging opinions among the executors and those participating in the meetings, following issues were approved:

- Hypertension as the subject of the study.
- Khane-Esfahan Health Center and Khajoo Health Center (18) as places for the study.
- Paying attention to all the risk factors of hypertension including malnutrition, sedentary lifestyle, mental stress, and smoking.
- Preparation of the content to be taught to the patients.

- Preparation of the instructions for how to prevent, screen, treat, control, and refer the patients to other healthcare providers.
- Designing the monitoring and evaluation system of the program from the baseline.
- It seems that so far no strong sustainable systematic program has been done to prevent and control hypertension.
- Blood pressure control is a preventive-curative task.
- In the healthcare team for blood pressure control, physicians and nurses have the central roles; however, nurses currently have no defined position.
- Using different techniques for training besides face to face method
- Selecting one person as a liaison and responsible for the program in each center where the self-care program is run.
- Paying attention to widespread notification of the program
- The patients must have their health records.
- The patients must be cared of and followed up regularly.
- Contribution of the private sector (physicians, nurses, and pharmacists) in the program.
- Necessary infrastructures of the program must be taken into account.
- Writing of the expected service pack.
- The system within which the private sector can execute the program must be defined while the focus is on the health center and healthcare center.
- Defining the organization and structure of the program from the baseline.
- Defining the required human resources in proportion with the workload.
- Empowerment courses must be run for the related human resources.
- Defining and executing the statistical system of the program.
- Codification of the budget table of the program.
- Defining the program within small programs.
- Using the experiences of the similar programs.
- Paying special attention to the pharmacists in training patients.
- Codification of workflow chart (flowchart) for hypertension self-care.
- Studying other programs similar to screening especially for diabetes.
- Distinguishing between activeness and passiveness of different parts of the flowchart.
- Evaluation of the cost effectiveness of different parts of the program.

- Some methods can be designed; then, cost effectiveness of each method can be examined.
- Communicating with family physician project is important.
- The desired system must not be complicated.
- The program must be adapted to needs of the target community like the time of providing service.
- Social marketing.

The hypertension control program currently undergoing in Iran is as follow (presented by Dr. Tahereh Samavat; Director of Cardiovascular Program of in Non-communicable Diseases Management Center of Health Ministry):

A) In rural areas (health houses and healthcare centers)
    1. A screening is performed every 3 years by healthcare social workers and the blood pressure of the patients is measured twice per visit and the mean blood pressure is recorded. If the pressure is higher than 140.90 mmHg, the patient will be referred to a physician.
    2. Blood pressure of the patients is measured by a Holter monitor, if available, otherwise, it is measured on several occasions. The patients are recommended to measure and record their blood pressure several times at home. If their blood pressure is greater than 140.90 mmHg, they are included in the follow-up form and visited every 3 months and undergo medical or non-medical treatments.
B) In urban areas: this program is run in 5 cities including Shiraz and Mashhad.

The guideline package for blood pressure control consists of 5 parts as follow:

Training the rural health workers (Behvarzan), training the technicians, training the professionals (those with Bachelor degree), training the physicians, and measuring blood pressure

Evaluation of the program includes the following issues:

Satisfaction of service recipients and providers, satisfaction of service providers (rural health workers, technicians, professionals, and physicians), number of referred cases, method of notification (whether done or not done by mentioning reasons), rate of measuring blood pressure of people over 30 years old, general condition of hypertension in the population covered by the

program, the condition of referring the patients to the physicians, the rate of covering a population in one month, the rate of measuring blood pressure of the total patients coming to the center, the rate of training the patients (public training and training the hypertensive patients) about physical activity, nutrition, and smoking, rate of measuring BMI of the patients, and the rate of referring patients to the physicians.

For physicians:

- The administered dose of drug, the rate of training the patients such as teaching the way of taking medication, dieting, physical activity, prevention and control of smoking, number of referred cases to specialists, the rate of adherence to the recommended treatment on the part of patients, satisfaction rate of patients with the time and way of diagnosing the disease, satisfaction rate of patients with the method of treatment, satisfaction rate of patients with the way of providing healthcare by the healthcare social workers, satisfaction rate of patients with the time of healthcare, satisfaction rate of patients with the way of providing healthcare by the physicians, and satisfaction rate of patients with how the drugs are prepared.

The important matter in the program for prevention and control of blood pressure is its integrity with the family physician program.

Feasibility of the program

Conducting the complete pilot study in four places

The complete pilot study was performed in four places as follows:

1. **Khane Isfahan Health Center**

   After arrangement with the headquarter of City Health Center and notifying the head of the health center, in-person meetings were held at the health center. Based on the initial information collected from patients' records, the status of hypertensive patients of this health center was studied before the physician, the nurse, and the representatives of the health center. Fifty (50) hypertensive patients were informed to attend in the self-care training sessions with their families at the appointed time. Almost 90% of the patients attended in the sessions, of whom 25% attended in the sessions with their families. At first, an interview was done with the patients, the physician, the nurse, and nutritional specialist. The physician had a supporting role in this program, however, the nurse and the relevant specialists (in nutrition and psychology) performed the main part of the training. The sessions were followed up through lectures, questions and answers, and personal consulting. Personal and group follow-up of the patients in hypertension self-care program will be continued as a program for controlling blood pressure. The patients and their families and the specialists were remarkably satisfied with the program as they asked for more sessions with fewer intervals. The patients stated that they have not heard of many points justified in these sessions on self-care from the other health service providers, such as proper nutrition in the practical sense, how to take medications, and drug interactions. In proportion with the facilities of the health houses, the execution of self-care program can be continued and integrated.

   Nurses of these centers that are defined as conductors of the program because of their workload were satisfied with the program although they mentioned the multiplicity of tasks and insufficient time as the impediments to the program. Families of the patients were interested in the necessity for following a proper lifestyle which has not been much focused on earlier and they asked for continuation of the program. The health houses are capable of executing such programs in terms of facilities like the place, training personnel, and training aids.

2. Khajoo Health Center

Once the necessary arrangement was made with the Provincial Health Center and the authorities of Khajoo Healthcare Center, the program started and a specialist in fight against diseases was responsible for following up the program. The patients were notified of the program through phone calls or personally going to the center and they were invited to go to the center at appointed times. Based on the primary questionnaire, needs of the patients about the training materials and their priorities were assessed. Training sessions were run by the physician of the center with the aim of empowering patients to be familiar with hypertension, measuring blood pressure at home, medical and non-medical therapies, proper following up the treatment, going to the center at the appointed times, and not stopping administration of drugs.

Follow-ups were carried out by a specialist in fight against diseases. According to the interviews with the patients most of whom attended the sessions without their families and had mean age of 60-70 years old, they were remarkably satisfied with the program and asked for further sessions regarding their unawareness of some mentioned points. However, the physician and the specialist in fight against diseases of this center discussed the executive problems and lack of facilities and personnel despite their satisfaction with the program. They also believed that considering the healthcare and therapeutic activities of these healthcare centers, continuation of such programs would be a pressure on the system that weakens the quality of the performance. In general, despite the need for self-care in chronic diseases like hypertension, the healthcare system in the city requires changes in structure and personnel. It is noteworthy that first sessions of the program had problems due to the superior administrative systems in those centers that necessitated more arrangement through letters and phone calls with relevant authorities.

3. Private offices

As most of the hypertensive patients go to doctor's offices as outpatients, this system is one of the significant executive forces for hypertension control. Physicians (general practitioners, specialists, and family physicians) believe in the necessity of self-care programs. In execution of the program, patients who went to the offices were taught self-care programs and their needs were assessed based on the information in the

questionnaire related to the self-care program. The patients were satisfied with the trainings as they acknowledged that no physician has already taught them such trainings. The way of taking medications that was trained to the secretaries by the physicians considerably contributed to improving process of the program. According to the physicians, the large number of patients and the long time needed for expression of explanations are impediments to the program that should be amended like additional permit for doing self-care programs. They also believe that the patients and the system do not appreciate the time spent for trainings, thus, the system needs to be corrected in order to able to follow the program. With respect to pharmacies and laboratories, brochures were distributed and their slogans were transmitted, however, high percentage of patients read them incompletely. Therefore, face to face recommendations by pharmacists and laboratory receptionists can be more effective in this regard.

4. Ghahjavarestan Health Center

Healthcare social workers have the main role in doing and following up self-care services in rural healthcare centers. As the healthcare social workers identify hypertensive patients, it is easy to invite them for the program. The program will be successful in rural healthcare houses through empowering the healthcare social workers in controlling blood pressure and considering the proper communication between the healthcare social workers and patients. Family physicians in rural healthcare centers believed in applicability of the program in rural health centers although they postulated a defined system for execution and follow-up. The patients going to these centers were much interested in the trainings. Methods of group training are applicable in special occasions in rural health centers. Inadequate physical space and little equipment of these rural health centers necessitate use of other spaces like mosques and cultural centers that facilitate the execution of the program in rural areas.

It can be generally concluded that it is necessary to execute the program for empowering hypertensive patients to do self-care. Applicability of this program in the current healthcare system of Iran requires periodical empowerment of physicians, pharmacists, nurses, health specialists, and healthcare social workers in mandatory courses. Governmental systems providing services in rural healthcare centers and health houses

can execute the program if they are notified according to a schedule. The current healthcare system needs to be structurally reformed, however, an uncomplicated and integrated program is applicable.

Finalizing the model

Empowering the health-care providers

It must be considered that empowerment is a process, not a characteristic. The effective elements in success of the program and the process of empowerment are as follows:

1. Having access to the information
2. Being accepted and contribute
3. Having sense of responsibility
4. Local organizational capacity

The service providers who are to be empowered in this program are as follows:

- Physicians (general physicians and specialists)
- Nurse
- Nutritionist
- Clinical psychologist
- Health professional and technician
- Rural health worker (Behvarz)

The curriculum intended for the collaborators consists of two parts as follows:

1. The curriculum related to enhancing training ability includes the following titles:
   1.1. **Necessary skills:** planning the trainings, need assessment, communicative planning, models for behavioral study and general principles in consultation for changing behavior.
   1.2. **General training:** health-related general concepts, empowerment, quality of life, life skills, and support systems and rules.

   This training course is held for 30 to 40 hours and based on the needs assessment at the beginning of the course, the time of theoretical and practical classes may be extended (schedule of this training course is available in Appendix ….)

2. The curriculum related to promoting training ability in the field of **scientific issues specific to blood pressure** includes the following titles:
   2.1. **Objectives**, strategies, and activities of the program
   2.2. **Duties** of different levels in executing the program
   2.3. Training on the patients' rights
   2.4. Training on the symptoms of hypertension
   2.5. Training on necessary diagnostic actions, the importance of preventing hypertension, and its acute and chronic complications
   2.6. Identifying the disease, instructions and way of filling related forms
   2.7. Methods for preventing hypertension
   2.8. Proper measurement of blood pressure
   2.9. Monitoring and self-care methods for hypertensive patients, nursing care, and the way of using sphygmomanometers
   2.10. Training on actions for medical therapy
   2.11. Training on actions for non-medical therapy (appropriate diet, physical activity, control of smoking, and control of stress)
   2.12. Training on characteristics of the disease
   2.13. Training on control measures
   2.14. Training on necessary actions for coping with the disease
   2.15. Training on social supports
   2.16. How to refer the patients to other health service providers if necessary
   2.17. Instructions for follow-up and care of patients
   2.18. The way of recording information and submitting them

Methods of training: lectures, workshops, group discussions, brainstorming, practical presentation, practical work, and personal study

Duration of training: This training course is held for 30 to 40 hours and based on the needs assessment done at the beginning of the course, the time of theoretical and practical classes may be extended.

Instructors: scientific-executive coordinator of the program in the university, ophthalmologists, endocrinologists, gynecologists, neurologists, cardiologists, nephrologists, health training experts, health specialists, hypertension program experts, dieticians, clinical psychologists, nurses

Training aids

Instructions for diagnosis, treatment and evaluation of complications, educational materials for preventing and controlling hypertension, executive instructions, forms and books for recording information, sample drugs for control of hypertension, pictures of food pyramid, scale, slides for complications of the disease, sphygmomanometers and stethoscope, and board.

Training the hypertensive patients and their families

Hypertension treatment is based on training. The purpose of this training is to help the hypertensive patients to understand their disease and also to enhance their ability to control their blood pressure precisely and properly with minimum effect on their lifestyle. The families and friends of the patients must be considered in this training course. The important point at baseline is to evaluate mental status of the hypertensive patients and to identify patient's level of knowledge on hypertension. Normally, a patient whose hypertension has been just diagnosed is very anxious, so patient must be given enough time to accept the disease and related future needs and to resolve his/her anxiety prior to beginning the training and treatment, otherwise, training such patient would be very difficult. Each patient must be considered as an individual independent from the other patients, with different needs (abilities) and learning ability. Therefore, individual training on the basis of each patient's personal characteristics must be taken into account (beliefs, habits, interests, and desires of each patient). All the hypertensive patients must enjoy proper training.

Content of the curriculum

1. Primary and essential information on hypertension includes: nature of hypertension, types of hypertension, its clinical symptoms, method of diagnosing hypertension, its long-term and short-term complications
2. Therapeutic objectives
3. The role of exercise
4. Self-care
5. Measurement of blood pressure by manual and digital tools and its interval
6. Prevention and treatment of long-term and short-term complications of hypertension
7. Detecting the complications of hypertension and the methods for preventing them
8. Pregnancy and oral contraceptive drugs for women with hypertension
9. Types of hypertension and their treatment method
10. Times of exacerbations (other diseases, vacations, travels, etc.)
11. Training and encouraging the patients using self-monitoring methods and recording the results
12. Special training for specific patients like hypertensive children, their families, pregnant women.

Training methods

1. **Individual consultation:** It is done by physicians, nurses, nutritionist, psychologists, and other healthcare service providers. Self-care and other issues which are applicable by the patients must be discussed in each counseling session.
2. **Group training:** It makes the hypertensive patients be familiar with each other and exchange their experiences of the disease.
3. **Indirect training:** books, booklets, CDs, Bluetooth, electronic books (eBooks)

These trainings are primarily performed by the physicians and secondarily by other personnel of hypertension self-care program in relevant health centers.

Training aids

Pamphlets, posters, books, films which must be prepared according to the needs of a given area.

Estimating an approximate time for providing "hypertension self-care" in healthcare centers and health houses:

The experts and healthcare social workers who provide health service can cover 1000 people on average.

Almost 68% of population is over 18 years old, of whom, 20% suffer hypertension or are prone to affecting with it that equals to 140 people in 1000 people.

If it is scheduled in such a way that above people go to the intended health service providing unit once a month, on average 6 people go to such a unit every month.

In case patients bring an individual with themselves to the health service providing unit, a daily group class on "self-care, prevention, and control of hypertension" can be held at the unit for those individuals. Three to four topics of the curriculum are expected to be taught in each session for almost 15 minutes. These topics are as follows:

- The importance and necessity of controlling blood pressure
- Complications of uncontrolled hypertension
- Non-medical therapy and proper lifestyle
- The important role of nutrition especially the amount of salt consumption
- The necessity for following up the required tests in time according to the relevant physician
- Training proper measurement of blood pressure at home if there are adequate facilities
- The necessity to know symptoms of hypertension that requires visiting a physician
- Medical therapy, type of drug, dose of drug, and the way of storing drugs
- The necessity for not stopping the drug after control of hypertension
- The importance of going to the service providing unit regularly
- Familiarity with side effects of the drugs
- The significance of supporting patients by their acquaintances
- Cases needed to visit a therapist as soon as possible

People who are prone to hypertension (high-risk individuals) and those with controlled hypertension are expected to go to a health service providing unit for controlling blood pressure and being taught the self-care program.

Table 3: Empowering health-care providers to hypertensive patients

People involved in the training	Empowerment tools	Empowerment center	The expected service	Monitoring and evaluation criteria
• General physicians, cardiologists, internists, occupational physicians, trained physicians of health clinic, physicians who are partners of associations, foundations, charity unions, and family physician	- Training seminars - Brochures & pamphlets - Physicians' self-learning through CDs and scientific journals periodical - Scientific books & articles - eBooks - periodical seminars in education departments	- EDC - Health deputy of the university - Medical Council - Medical School	• **Training on hypertension** - The importance of hypertension - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - Medical therapy & identification of side effects & correct maintenance of drug - Proper measurement of blood pressure - Training the new guidelines for hypertension - Emergencies of hypertension - Involvement of vital organs - Secondary hypertension • **Training self-care for hypertension** - Proper measurement of blood pressure at home using sphygmomanometer - Training proper administration of combined drugs - How to communicate with patients correctly - Brief training for patients on the importance of self-care for patients and their families, non-medical therapies, not stopping administration of the drug without consulting with the physician, monitoring at home, identifying the drugs taken by each patient, side effects of the drugs, timely attendance of the patients at appointments, identifying occasions when patients must visit the physician earlier. • **The technique of how to properly communicate with the patients and to motivate them to do self-care** • **Training the documentation of patients' records for self-care services in the relevant workplace** • **Supervising and following up the process of patients self-care** - Identification of correct guidelines for following up hypertensive patients - Medical side effects - Examining the monitoring file of the patients and treating	- Number of physicians participating in the program - Number of files in hypertension self-care in office - Physician's satisfaction - Number referrals by physicians - Number of regular visits by the patients - Patients' satisfaction - Number of patients under care that suffer complications - Number of patients with controlled hypertension - Rate of patients' KAP

			the uncontrolled cases, if necessary	
• Nurses	- Training periodical seminars - Sending brochures & pamphlets periodically - Nurses' self-learning through CDs, scientific journals, eBooks, & articles	- Nursing council - Nursing School - EDC	• **Training on hypertension** - The importance of detecting hypertension - Symptoms of hypertension - Complications of hypertension - hypertension follow-up - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - Medical therapy & identification of side effects & correct maintenance of drug - Proper measurement of blood pressure - Training the new guidelines for hypertension • **Training self-care for hypertension** - Proper measurement of blood pressure at home using sphygmomanometer - Controlling the process of blood pressure measured by patients - Referring the patients to physicians in case of not controlling blood pressure - Therapeutic recommendations and not stopping administration of drug if the blood pressure is controlled - Going to treatment centers in time - Training proper administration of drugs - How to communicate with patients correctly - Short training the patients on the importance of self-care for the patients and their families, non-medical therapies, not stopping administration of the drug without consulting with the physician, monitoring at home, identifying the drugs taken by each patient, side effects of the drugs, attendance of the patients at appointments in time, identifying occasions when the patients must visit the physician earlier. • **The technique of properly communicate with the patients and to motivate them to do self-care** • **Training the documentation of patients' records for self-care services in the relevant workplace** • **Following up the process of patients self-care**	- Attitude of nurses toward self-care programs - Satisfaction of nurses of self-care programs - Number of files on self-care - Satisfaction of patients of the provided services - Number of patients with proper administration of drug - Number of patients measuring their blood pressure correctly - Rate of patients' KAP

			- Identification of correct guidelines for following up hypertensive patients - Medical side effects - Examining the monitoring file of the patients and incomplete treatment	
• Health experts, specialists in fight against diseases, nutritionists, psychologists, specialists in physical examination, healthcare assistants in factories	- Training periodical seminars - Brochures & pamphlets - Package for self-care services providing - Training books for health experts	- Service training - Health School - Healthcare networks	• **Training on hypertension** - The importance of hypertension - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - Medical therapy & correct maintenance of drug - Proper measurement of blood pressure - Hypertensive patients needed to be referred to physicians - hypertension follow-up • **Training self-care for hypertension** - Proper measurement of blood pressure at home using sphygmomanometer - Administration of combined drugs on time - How to communicate with patients correctly - Short training the patients on the importance of self-care for the patients and their families, non-medical therapies, not stopping administration of the drug without consulting with the physician, monitoring at home, identifying the drugs taken by each patient, side effects of the drugs, attendance of the patients at appointments in time, identifying occasions when the patients must visit the physician earlier. • **The technique of properly communicate with the patients and to motivate them to do self-care** • **Training the documentation of patients' records for self-care services in the relevant workplace** • **Following up the process of patients self-care** - Identification of correct guidelines for following up hypertensive patients - Medical side effects - Examining the monitoring file of the patients and incomplete treatment	- The ratio of self-care files to total patients - Percentage of hypertensive patients who go to the center regularly - Satisfaction of collaborators of the program - Satisfaction of patients of the program - Rate of patients' KAP
• Healthcare social	- Training seminars	- Institute of training	• **Training on hypertension** - The importance of hypertension	- Percentage of hypertensive

workers	- Brochures & pamphlets - Package for self-care services providing - Training CD	healthcare social workers - Health house - Healthcare center	- Complications of hypertension - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - Medical therapy & identification of side effects & correct maintenance of drug - Proper measurement of blood pressure - The importance of hypertension follow-up in time • **Training self-care for hypertension** - Proper measurement of blood pressure at home using sphygmomanometer - Training the time and dose of administered drugs - How to communicate with patients correctly - Short training the patients on the importance of self-care for the patients and their families, non-medical therapies, not stopping administration of the drug without consulting with the physician, monitoring at home, identifying the drugs taken by each patient, side effects of the drugs, attendance of the patients at appointments in time, identifying occasions when the patients must visit the physician earlier. • **The technique of properly communicate with the patients and to motivate them to do self-care** • **Training the documentation of patients' records for self-care services in the relevant workplace** • **Following up the process of patients self-care** - Identification of correct guidelines for following up hypertensive patients - Medical side effects - Examining the monitoring file of the patients and referring them to physicians, if necessary	patients who are followed up in the center - Satisfaction of healthcare social workers - The ratio of self-care files to total patients - Percentage of hypertensive patients who go to the center regularly - Satisfaction of patients of the program - Rate of patients' KAP
• Nutritionists	- Periodical training seminars - Sending brochures & pamphlets periodically - Self-learning through CDs,	- Health School - EDC	• **Training on hypertension** - The importance of hypertension - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - The effect of other elements of diet in hypertensive patients - Kinds of diets for control of obesity and their effect on	- Percentage of patients who go to the clinic for follow-ups - Rate of patients' KAP - Percentage of patients who observe the

	scientific journals, & eBooks		hypertension • **Training self-care for hypertension** - How to communicate with patients correctly - Short training the patients on the importance of self-care for the patients and their families, non-medical therapies - Proper nutrition for hypertensive patients - The amount of salt used by hypertensive patients • **The technique of properly communicate with the patients and to motivate them to do self-care** • **Training the documentation of patients' records for self-care services in the relevant workplace**	recommended diets for a long time
• Residents & interns	- Training seminars - Brochures & pamphlets periodically - Physicians' self-learning through CDs & scientific journals periodically - eBooks - periodical seminars in education departments - Training the professors	- EDC - Health deputy of the university - Medical Council - School of Medicine	• **Training on hypertension** - Training the new guidelines for hypertension - The importance of hypertension - The importance of non-medical therapy & proper lifestyle including appropriate nutrition (DASH diet), suitable physical activity, control of stress, smoking cessation - Medical therapy & identification of side effects & correct maintenance of drug - Proper measurement of blood pressure - The importance of blood pressure measured by the patient at home - Emergencies of hypertension - Involvement of vital organs - Secondary hypertension • **Training self-care for hypertension** - Proper measurement of blood pressure at home using sphygmomanometer - Training proper administration of combined drugs - How to communicate with patients correctly - Brief training of patients on the importance of self-care for patients and their families, non-medical therapies, not stopping administration of the drug without consulting with the physician, monitoring at home, identifying the drugs taken by each patient, side effects of the drugs, attendance of the patients at appointments in time, identifying occasions when the patients must visit the physician earlier. • **The technique of how to properly communicate with the**	- Number of physicians participating in the program - Physician's Satisfaction - Number referrals by physicians - Number of regular visits by the patients - Patients' satisfaction - Number of patients under care that suffer complications - Number of patients with controlled hypertension - Rate of patients' KAP - Number of physicians participating in empowerment program

			patients and to motivate them to do self-care	- Physician's satisfaction
• Those handing over the drug to patients & in charge of laboratories	- Face to face training for leaving pamphlets and brochures with drugs - Adding relevant messages for laboratories	- Pharmacies - Laboratories	- Defining the hypertension - Causes of hypertension - The importance and necessity of controlling blood pressure - Complications of hypertension - hypertension self-care - Visiting the physician in time - Controlling blood pressure by the patients - The correct time and dose of administered drugs - Medical therapy, type of drug, dose of drug, & correct maintenance of drug - Side effects of taken drugs - Not stopping the administration of drug without any reason or irregular administration - The importance of non-medical therapies	- The percentage of trained patients - Satisfaction rate of patients - Satisfaction rate of service providers - Rate of patients' KAP

Table 4: Providing the expected hypertension self-care training service by physicians in private offices (including general or specialized and family physicians)

Service recipient	Methods of training	The place of service	Content of the curriculum	Monitoring and evaluation
• Patient	- Face to face training - Pamphlets and brochures designed in simple language - Patients' index card - Training CDs - SMS - Follow-up by phone calls	- Physicians' office - Service provider: physicians or their trained secretaries	- The importance and necessity of treating hypertension - Complications of hypertension - The importance of Non-medical therapy and proper lifestyle - The significance of salt consumption in incidence and exacerbation of hypertension - Medical therapy and correct administration of drugs including type of drug, dose of drug, and the way of storing drugs - Familiarity with important side effects of the drugs - Normal blood pressure does not mean stopping administration of drugs - Control of other cardiovascular factors - Following up the required tests in time according to the relevant physician - Training proper measurement of blood pressure at home - The necessity to know symptoms of hypertension that requires visiting a physician - The importance of going to the service providing unit regularly - Requesting the physicians or nurses for measuring blood pressure in every visit to an office or a hospital	- Number of patients covered by self-care program - Number of distributed training printed aids - Study of patients' KAP - Counting the pills remaining at the end of each period - Patients' satisfaction - Number of files related to hypertension self-care in the office - Physician's satisfaction - Number of referrals by physicians - Number of regular visits of patients - Number of patients under care that suffer complications - Number of patients under care with controlled hypertension - Number of patients referred to higher levels of service providers
• Patients' families	- Face to face training - Pamphlets and	- Physicians' office - Service	- The importance and necessity of treating hypertension - Complications of hypertension	- Performing the non-medical therapeutic recommendations at

	brochures - Training CDs	provider: physicians or their trained secretaries	- The existence of family history in incidence of hypertension - The importance of Non-medical therapy and proper lifestyle - Encouraging the patients to follow the physicians' instructions - The importance of measuring blood pressure of patients' families - The importance of measuring blood pressure of the patients by their relatives - Knowing the patients' drugs - The importance of appropriate support by acquaintances - Being in touch with the patients to follow up their process of treatment - Being in touch with the therapists to follow up the process of treatment	home - Satisfaction of the patients' families of the training - Number of patients covered by self-care program - Number of distributed training aids - Study of patients' families' KAP
• People in high risk (including those with obesity, diabetes, sedentary life or any other factor causing hypertension)	- Face to face training - Pamphlets and brochures designed in simple language - Patients' index card - Training CDs - SMS - Follow-up by phone calls	- Physicians' office - Service provider: physicians or their trained secretaries	- The importance of preventing hypertension - Risk factors of hypertension - Proper lifestyle including appropriate nutrition, suitable physical activity, control of stress, smoking cessation - Requesting the physicians for measuring blood pressure in every appointment with a physician for other reasons - Training the use of appropriate social support - Doing necessary tests periodically - Measurement of blood pressure at home	- Examining the visits done at the appointed time - Smoking cessation and controlling obesity - Number of people covered by self-care program - Number of distributed training aids - Study of people s' KAP - Performing the non-medical therapeutic recommendations at home - Satisfaction of the people of the training - Rate of controlling other diseases - Number of people affected with

				hypertension

*execution of this program does not need superordinates.

Table 5: Providing the expected hypertension self-care training service by health workers in rural health houses

Service recipient	Methods of training	The place of service	Content of the curriculum	Monitoring and evaluation
1- Patients	- Face to face training - Pamphlets and brochures designed in simple language - Patients' index card - Training CDs - SMS - Follow-up by phone calls - IVR - Running daily group classes - Group discussions	- Health houses	- The importance and necessity of controlling blood pressure - Complications of uncontrolled hypertension - Non-medical therapy and proper lifestyle - The important role of nutrition especially the amount of salt consumption - The necessity for following up the required tests in time according to the relevant physician - Training proper measurement of blood pressure at home if there are adequate facilities - The necessity to know symptoms of hypertension that requires visiting a physician - Medical therapy, type of drug, dose of drug, and the way of storing drugs - The necessity for not stopping the drug after control of hypertension - The importance of going to the health houses regularly - Measuring blood pressure in every visit to health houses for other reasons	- Rate of visits to the health houses by patients - Satisfaction of patients - Percentage of hypertensive patients who are followed up in those health houses - Satisfaction of healthcare social workers - The ratio of self-care files to total patients - Percentage of patients who go to the health houses regularly - Rate of patients' KAP - Counting the pills remaining at the end of each period - Number of distributed training aids - Number of patients referred to higher levels of service providers
2- Patients' families	- Face to face training - Pamphlets and brochures - Group training programs - Running daily group	- Health houses	- The importance and necessity of controlling blood pressure - Complications of uncontrolled hypertension - Non-medical therapy and proper lifestyle - Appropriate medical therapy - Encouraging the patients to follow the physicians' instructions - Encouraging the patients to go to physicians or laboratories regularly	- Performing the non-medical therapeutic recommendations at home by the family - Satisfaction of the patients' families of the training - Number of patients covered by self-care

	classes - Group discussions		- Encouraging the patients to measure their blood pressure at home regularly - Knowing the patients' drugs and their side effects - Being in touch with the therapists periodically to follow up the process of treatment - The importance of measuring blood pressure of patients' families regarding the role of family history of the disease	program - Number of distributed training aids - Study of patients' families' KAP
3- People in high risk (including those with obesity, diabetes, sedentary life or any other factor causing hypertension)	- Face to face training - Pamphlets and brochures designed in simple language - Patients' index card - Training CDs - SMS - Follow-up by phone calls - Running daily group classes - Group discussions	- Health houses	- The importance of preventing hypertension - Risk factors of hypertension - Proper lifestyle including appropriate nutrition, suitable physical activity, control of stress, smoking cessation - Requesting the physicians for measuring blood pressure in every appointment with a physician for other reasons - Training the use of appropriate social support - Doing necessary tests periodically - Measurement of blood pressure at home	- Rate of visits to the health houses by those people for follow-ups - Performing the non-medical therapeutic recommendations at home - Rate of smoking cessation and controlling obesity - Number of patients covered by self-care program - Number of distributed training aids - Study of patients' families' KAP - Satisfaction of the people of the training - Rate of controlling other diseases - Number of people affected with hypertension

*execution of this step requires coordination with current healthcare system.

Other training materials were discussed in order of following outlines:

4. Providing the expected hypertension self-care service by health professionals in urban health centers
5. Providing the expected hypertension self-care service by physicians, nurses, health professionals in specific health centers (only present in Isfahan city)
6. Providing the expected hypertension self-care service by physicians and nutritionists in private clinics for diabetes and obesity and health or smoking cessation consulting centers
7. Providing the expected hypertension self-care service by physicians, residents, and interns in clinics for cardiac diseases and blood pressure in hospitals
8. Providing the expected hypertension self-care service by physicians, residents, interns, and nurses in emergency and admission wards of hospitals
9. Providing the expected hypertension self-care service by pharmacies and laboratories
10. Providing the expected hypertension self-care service by physicians (general and industrial) and healthcare workers in departments and factories
11. Providing the expected hypertension self-care service to general population
12. Providing the expected hypertension self-care service by health-related NGOs (associations, foundations, and charity unions)

Table 6: Action plan and evaluation of the curriculum "principles of hypertension self-care"

Subject of training: Self-care by hypertensive patients

General objective: The hypertensive patients would learn necessary knowledge, attitude, and performance related to hypertension self-care.

The health center for training:

The place of training:

Date of training:

Action plan						**Monitoring and evaluation of learners**									
Item	Behavioral objective	Scope of learning	Training technique	Training aid	Time (min)	1st individual		2nd individual		3rd individual		4th individual		5th individual	
						Yes	No	Yes	No	Yes					
1	Defining hypertension in one sentence	knowledge	Lecture Question & answer	Poster, whiteboard	2										
2	Explaining the important characteristic of hypertension in 2 sentences	knowledge	Lecture Question & answer	Poster, whiteboard	2										
3	Naming 5 risk factors of hypertension related to lifestyle which causes hypertension	knowledge	Lecture Question & answer	Poster, whiteboard	3										
4	Explaining the difference between controlling blood pressure by regular going to clinic and by measuring it at home, in 3 sentences	knowledge	Lecture Question & answer	Poster, whiteboard	3										
5	Naming 5 clinical symptoms needed immediate going to a physician	knowledge	Lecture Question & answer	Poster, whiteboard	4										
6	Naming at least 3 methods of non-medical therapies	knowledge	Lecture Question & answer	Poster, whiteboard	4										
7	Naming 2 drugs that control hypertension	knowledge	Lecture Question & answer	Poster, whiteboard	6										
8	Naming 2 proper ways of storing drugs	knowledge	Lecture Question & answer	Poster, whiteboard	3										
9	Mentioning the best time for administration of drugs	knowledge	Lecture Question &	Poster, whiteboard	4										

			answer												
10	Explaining simultaneous use of other drugs with hypertension drugs in 2 sentences	knowledge	Lecture Question & answer	Poster, whiteboard	4										
11	Naming 2 important side effects of hypertension drugs	knowledge	Lecture Question & answer	Poster, whiteboard	2										
12	Naming 2 types of sphygmomanometers	knowledge	Lecture Question & answer	Poster, whiteboard	1										
13	Naming 2 advantages for each familiar sphygmomanometer	knowledge	Lecture Question & answer	Poster, whiteboard	2										
14	Mentioning 4 complications of uncontrolled hypertension	attitude	Brainstorming Group discussion	Poster, whiteboard	2										
15	Explaining the importance of lifelong control of hypertension in 1 sentence	attitude	Lecture Question & answer	Poster, whiteboard	2										
16	Explaining the significance of stress in causing hypertension in 4 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	2										
17	Explaining the importance of social support in prevention and control of hypertension in 3 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	2										
18	Explaining the importance of nutrition in prevention and control of hypertension in 5 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	3										
19	Explaining the importance of controlling hypertension in satisfaction of life in 3 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	2										
20	Explaining the importance of smoking cessation in control of hypertension at least in 2 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	2										
21	Explaining the importance of regular exercise in control of hypertension in 2 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	3										
22	Explaining the importance of regular visiting physician for control of hypertension in 3 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	3										
23	Explaining the importance of regular administration of drugs in 3 sentences	attitude	Brainstorming Group discussion	Poster, whiteboard	4										
24	Presenting proper measurement of blood	Functional	Practical	sphygmom	5										

	pressure		presentation	anometer											

Other action plans and assessment of the curriculum are about the following subjects:

- "The role of controlling stress in hypertension self-care"
- "The role of nutrition in hypertension self-care"
- "The role of smoking in hypertension self-care"

The program for hypertension self-care in Family Physician Program

Considering the importance of family physician program which is currently performed in rural areas and will be performed in cities, the self-care program is discussed here as it is integrated with family physician program:

A. Services provided by collaborators other than physicians for hypertension in family physician program

1. Completing the form of caring for the hypertensive patients that was confirmed by the physician
2. Asking the patients about their experiences of the disease including:
   History of affecting with hypertension
   Family history of hypertension
   History of taking any antihypertensive drug, name and dose of the drug
   Nutritional condition in terms of consuming salt, fat, fruit, and vegetable
   Examining number and duration of patient's physical activities
   Examining number and duration of smoking habits
   Examining the existence of social and familial stress
   Studying symptoms of hypertension complications
3. Doing examinations and measuring blood pressure, height, weight, BMI, and waist to hip ratio
4. Referring the diagnosed patient to a physician according to patient's symptoms:
   Immediate referral of the patient with systolic blood pressure equal to or greater than 160mmHg or diastolic blood pressure equal to or greater than 100mmHg
   Non-urgent referral in cases of incidence of drug-related complications, an unfavorable blood pressure measured by the physician, incidence of suspicious symptoms of hypertension complications
5. The training involves:
   Training the patients:
   Description of the disease, explaining its complications and risks, the necessity of controlling blood pressure, the necessity for prevention of complications, and changes in lifestyle.

6. Non-medical care and patient follow-up

   Changes in behavior and lifestyle, teaching the type of nutrition and physical activity, taking medications if necessary, explaining the way and time of taking medications, emphasizing on follow-ups at times appointed by the physician
7. Follow-up: monthly care for hypertensive patients
8. Recording taken actions in family file and completing the form for recording disease

B. Services provided by physicians for hypertension in Family Physician Program

1. Asking the hypertensive patients about their experiences of the disease
2. Performing the examinations
3. Requesting tests for detecting cases of secondary hypertension
4. Classification of hypertensive patients according to their cardiovascular disease, diabetes or damaged vital organs
5. The training includes:

   Description of the disease,

   Explaining its complications

   The necessity of controlling hypertension

   The necessity for prevention of complications

   Suggesting changes in lifestyle.

   Dietary suggestions for these patients are as follows: The patients must avoid consuming a large amount of food in one meal. If they are overweight, they must lose weight. They should consume a balanced combination of all food groups in their meals. They should minimize fat consumption. They must remove the fat of meat and skin of chickens before cooking them. They must use minimum salt because diabetic patients are exposed to much risk of cardiovascular diseases.

   Diabetic patients must use fibrous foods like cereals, vegetables, and fruit because they are effective in reduction of glucose. They should supply a part of their needed protein out of cereals. Diabetic patients should consume foods with low glycemic index more than those with high glycemic index.

   Foods with low glycemic index include: *Barbari* bread, *Taftoon* bread, *Sangak* bread, beet, French fries, split peas, lentils, kidney beans, wax bean and mung beans. Foods

with high glycemic index include: mechanical *Lavash* bread, hyacinth beans without pod, carrots, potatoes, and mashed potatoes.

6. Beginning the medical therapy in order to reach the target blood pressure (less than 130.80 mmHg in patients with cardiovascular diseases, diabetes or damaged vital organs, and control of 140.90 mmHg in other patients) through the following steps:
   Prescribing appropriate medication
   Explaining the way and time of taking medications
   Explaining the probable side effects of the drug
   Appointing the follow-ups
7. Follow-ups involve:
   Examining effect of the treatment through measuring blood pressure monthly till Reaching the target blood pressure, then, twice every three months for patients.
   Evaluating the tendency of patients for taking the drug.
   Examining the patients for side effects of the drug.
   Examining the target organ for the damages and complications of the disease.
   Training and encouraging the patients to continue a healthy lifestyle in each visit.
   Preventing the complications of the disease and controlling the risk factors.
8. Counseling and referring the patients to specialists in following cases:
   Periodical examination of complications of the disease, the presence of complications of the disease, lack of response to the treatment, the presence of evidences for secondary hypertension, hypertension crises.
9. Supervising the activities of non-physicians.
10. Performing services related to non-physicians that have not been done for any reason.
11. Recording taken actions in family file and completing the form for recording disease.

C. Services provided by non-physicians for elderly with hypertension in Family Physician Program

- Evaluating the elderly for their blood pressure level
- Classification of elderly based on having serious problem with blood pressure, having problem with blood pressure, being exposed to hypertension, not having any problem with blood pressure, and orthostatic hypotension.

- Following up the elderly exposed to hypertension every three months
- Training the elderly and those come with them about nutrition and proper exercise, taking medications, measuring blood pressure, and complications of hypertension.
- Providing intensive care during follow-ups (every three months) for measurement of blood pressure, controlling knowledge of the elderly on nutrition and proper exercise.
- Periodical care for elderly with normal blood pressure every three years.

D. Services provided by physicians for elderly with hypertension in Family Physician Program

- The services are the same as those mentioned above.

Outlines of training materials in respect of family physician program were defined as follows:

1. Providing the service (training) expected by hypertension self-care by physicians in family physician program
2. Providing the service (training) expected by hypertension self-care by health experts in family physician program
3. Providing the service (training) expected by hypertension self-care by nurses in family physician program
4. Empowering the service providers in health team of family physician program for hypertensive patients self-care

Monitoring and evaluation of system of the program for hypertension self-care

This system is written in three different types:

1. Evaluation of the "**process**" which includes:

1.1. Evaluation of planning
1.2. Evaluation of the pilot study
1.3. Evaluation of the executive procedures of the program (supplying resources, performing the program, and following up)
1.4. Evaluation of information system of the program
1.5. Evaluation of needs assessment of the addressees of the program

2. Evaluation of the "**effect**" of program which includes:
   2.1. Assessment of KAP of the patients (before and after the study) on concepts and importance of self-care and levels of medical services.
   2.2. Assessing the patients referred to specialty treatment centers.
   2.3. Assessing the patients referred to counseling centers.
   2.4. Assessing the patients who become members of self-help group.
   2.5. Assessing the variation in treatment costs for patients
   2.6. Assessing frequency of visits by patients to the therapists
   2.7. Assessing the treatment results of patients regarding the positive points and incidence of complications
   2.8. Assessing the satisfaction rate of patients
   2.9. Assessing the satisfaction rate of therapists
3. Evaluation of the "**result**" of the program which involves:
   3.1. Assessing the patients with controlled blood pressure
   3.2. Assessing the patients with uncontrolled blood pressure
   3.3. Assessing the patients suffering the final complications of hypertension including myocardial infarction, brain stroke, kidney failure, and visual defect.
   3.4. Assessing the changes in "**life quality**" of the patients
   3.5. Assessing the cost effectiveness of the provided services

Each type of above evaluations has three major parts as follows:

1. Evaluation tools which may be one of the following options:

- Observation
- Interview
- Data collection form

- Questionnaire (yes/no questions, questions answered with tick, multiple-choice questions, ranked questions, open questions)
- Report form (electronic or non-electronic)
- Standards and criteria (compulsory or general)

2. A **standard** which determines minimum acceptable criteria of each components of the tools and the whole tools.
3. **A protocol or an instruction** in which ways of completing the assessment tools and scoring are determined with full description.

Recommendations

Finally, regarding the performed program and studying its feasibility, it is suggested:

1. Reactivating the previous hypertension program which was performed in healthcare centers.
2. Contribution of municipalities and their affiliated cultural centers as areas for health-based training.
3. Adding the self-care curriculum to the training courses of medical students, residents, and interns.
4. Making self-care services covered by insurance.
5. Accounting the NGOs and self-help groups as executive forces in self-care training for patients and their families.
6. Activating the family physician program in cities.
7. Operating health centers in other cities of the country (these centers are currently working as a model in Isfahan).
8. Using systems such as; SMS, email, and interactive voice response (IVR), and preparing printed training aids, CDs, and pamphlets with simple language in order to transmit health-related messages of self-care programs for diseases especially hypertension.
9. Using the patients' index card which contains short messages on self-care for patients and their families.
10. Using mass media, especially broadcasting, for transmitting health-related messages of self-care program.
11. Presenting operative instructions from ministries for integrating the self-care programs to current systems of urban and rural healthcare centers.
12. Using laboratories and pharmacies for providing self-care services especially proper administration of drugs.

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Useful Links

- Agency for Healthcare Research and Quality: http://www.ahcpr.gov
- American College of Chest Physicians: http://www.chestnet.org/guidelines
- American Medical Association: http://www.ama-assn.org
- British Columbia Council on Clinical Practice Guidelines: http://www.hlth.gov.bc.ca/msp/protoguides/index.html
- British Medical Journal – Clinical Evidence: http://www.clinicalevidence.com/ceweb/conditions/index.jsp
- Canadian Centre for Health Evidence: http://www.cche.net/che/home.asp
- Canadian Institute of Health Information: http://www.cihi.ca
- Canadian Task Force on Preventive Health Care: http://www.ctfphc.org
- Centers for Disease Control and Prevention: http://www.cdc.gov
- Centre for Evidence-Based Mental Health: http://cebmh.com
- Centre for Evidence-Based Nursing: http://www.york.ac.uk/healthsciences/centres/evidence/cebn.htm
- Centre for Health Evidence: http://www.cche.net/che/home.asp
- Centre for Health Services and Policy Research: http://www.chspr.ubc.ca
- Clinical Resource Efficiency Support Team (CREST): http://www.crestni.org.uk
- CMA Infobase: Clinical Practice Guidelines: http://mdm.ca/cpgsnew/cpgs/index.asp
- Evidence-based On-Call: http://www.eboncall.org
- Institute for Clinical Evaluative Sciences: http://www.ices.on.ca
- Institute for Clinical Systems Improvement: http://www.icsi.org/index.asp
- Institute of Child Health: http://www.ich.ucl.ac.uk/ich
- Joanna Briggs Institute: http://www.joannabriggs.edu.au
- Medscape Women's Health: http://www.medscape.com/womenshealthhome
- Monash University Centre for Clinical Effectiveness: http://www.med.monash.edu.au/healthservices/cce/evidence
- National Guideline Clearinghouse: http://www.guidelines.gov
- National Institute for Clinical Excellence (NICE): http://www.nice.org.uk
- New Zealand Guidelines Group: http://www.nzgg.org.nz
- NHS Centre for Reviews and Dissemination: http://www.york.ac.uk/inst/crd
- NHS Nursing & Midwifery Practice Dev. Unit: http://www.nmpdu.org
- NHS R & D Health Technology Assessment Programme: http://www.hta.nhsweb.nhs.uk/htapubs.htm
- PEDro: The Physiotherapy Evidence Database: http://www.pedro.fhs.usyd.edu.au/index.html
- Royal College of General Practitioners: http://www.rcgp.org.uk
- Royal College of Nursing: http://www.rcn.org.uk/index.php
- Royal College of Physicians: http://www.rcplondon.ac.uk
- http://www.sogc.medical.org/sogcnet/index_e.shtml
- SUMSearch: http://sumsearch.uthscsa.edu