

## A study on problems in diagnosis and treatment of hypertension in rural areas of Iran

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### Abstract

**BACKGROUND:** Health Houses are centers to provide first level health care to the large number of rural population in Iran. Major causes of death in rural areas indicate the implementation of many health care services without adequate awareness about effective local and cultural factors. Identifying local problems is crucial for prevention, early diagnosis, and treatment of hypertension in Health Houses. In this paper, we analyzed the main problems in diagnosis and treatment of hypertension in a rural health center and presented solutions and methods for solving these problems.

**METHODS:** In this cross-sectional survey, medical history and blood pressure charts of 93 hypertensive patients were used to collect data. Moreover, the attitudes of patients regarding the disease and its treatment were recorded in a questionnaire to evaluate effective cultural and behavioral factors in hypertension control. All data was analyzed in SPSS<sub>18</sub>.

**RESULTS:** The most common reason of uncontrolled hypertension was avoiding drug use due to forgetfulness in women and disease denial in men. In addition, we found multidrug treatment to be more effective than single-drug therapy in controlling high blood pressure.

**CONCLUSION:** In conclusion, the number of males with diagnosed hypertension was fewer than females. Moreover, compared to female patients, male patients referred to the health center less frequently. Their blood pressure was thus less controlled and they experienced more complications of the disease. Adequate education, especially in men, seems to be necessary to change the attitudes toward the disease and receiving treatment.

**Keywords:** Hypertension, Rural Areas, Health Worker, Male Patient

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### Introduction

Hypertension is one of the most prevalent chronic diseases worldwide.<sup>1-3</sup> It is usually asymptomatic, but it may be associated with considerable morbidity and mortality. As the blood pressure reaches higher levels, the risk for adverse outcomes including progression of coronary artery disease, congestive heart failure, stroke, and kidney disease increases.<sup>4</sup> Hypertension treatment has been clearly shown to reduce these risks.<sup>4-6</sup> In the Iranian health system, the rural center (called the Health House) is the first level of health care, i.e. people first refer to Health Houses to receive care before being visited by a physician.<sup>7</sup> Since most rural men believe that only women and children should go to Health Houses, they tend to receive care less frequently than women. Hypertension is thus underdiagnosed or poorly controlled in male patients and they face more complications of the disease.

#### Materials and Methods

In a village near Hamadan (Iran) with a population of about 2387 individuals, 138 patients with

hypertension were identified. In more than 2 years of study, we collected the medical histories of patients based on visits by family physicians and blood pressure charts. We also designed specific questionnaire forms to gather information about main behavioral and cultural causes of the disease based on the attitudes of patients toward the disease and the center. In order to prevent incoming biases, health workers who measured blood pressure did not know the patients or the type of treatment they were receiving. Medical information of patients was documented by a family physician during the visits. The patients were also referred to specialists during the period of the study and the results were recorded.

Due to incomplete documents, inadequate data, incomplete referral results, or lack of interest in cooperation, some patients were excluded. Finally, the data of 93 patients was analyzed using SPSS<sub>18</sub>. P values less than 0.05 were considered as significant.

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### Results

Women and men constituted 62.3% and 38.7% of the studied hypertensive population, respectively. Systolic and diastolic blood pressure was better controlled and thus significantly lower in women than in men (chi-square test:  $df = 1$ ;  $P = 0.006$ ) (Figures 1 and 2, Table 1). Men referred to the health center less frequently than women (26.6% vs. 73.4%).

We defined uncontrolled blood pressure as 3 measurements of higher than 140/90 mmHg or one measurement of  $> 175/95$  mmHg. The most common reason of uncontrolled hypertension in both genders was avoiding drug use. In fact 81.2% of patients with uncontrolled hypertension had not taken their drug recently. About 25% of men and 7% of women had uncontrolled hypertension during the period of study (chi-square test:  $df = 1$ ;  $P = 0.018$ ). In 76.62% of women, treatment failed since they were in the habit of forgetting their medicine. However, 72.46% of men did not use their medicine because they denied their disease (Table 2). Denial was significantly more common in men than in women. About 2.65% of women and 19.44% of men did not accept the fact that they were suffering from a chronic disease (chi-square test:  $df = 1$ ;  $P = 0.003$ ). Most male patients with uncontrolled

hypertension believed that although they had experiences of high blood pressure, the condition was not permanent and did not require regular treatment (84.26%).

During the course of our study, 33.33% of men and 14.03% of women suffered from the complications of hypertension. Congestive heart failure, coronary artery disease, chronic renal failure, and a history of a cerebrovascular incident were respectively found in 13.8%, 8.3%, 5.55%, and 5.5% of men and 3.5%, 5.2%, 3.5%, and 1.75% of women.

The most common reason for not referring to receive health care services among women was disremembering the time of their appointment with the doctor or health workers mainly due to being busy with daily chores and duties (68.59%). Most men (81.25%) on the other hand, did not receive care since they believed that the Health House was a place for women, children, or ill, old, and weak persons.

The rates of using 1, 2, or more drugs to treat hypertension are reported in table 3. Treatment with more than one drug reduced systolic and diastolic blood pressure more efficiently than single drug treatment. Multidrug therapies could thus better reduce the incidence of uncontrolled blood pressure (chi-square test:  $df = 1$ ,  $P = 0.009$ ) (Table 4).

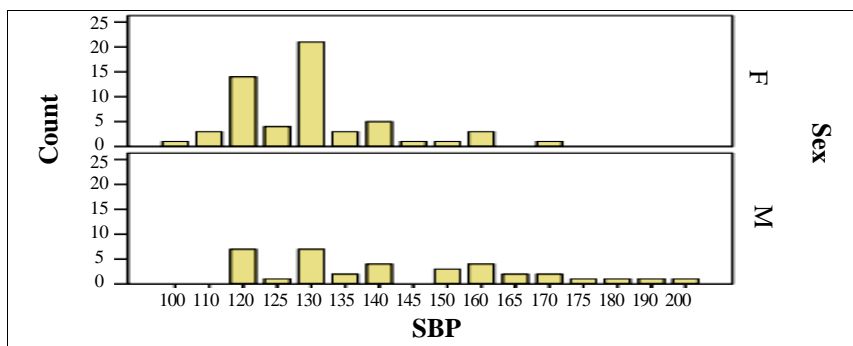


Figure 1. Systolic blood pressure (SBP) by gender

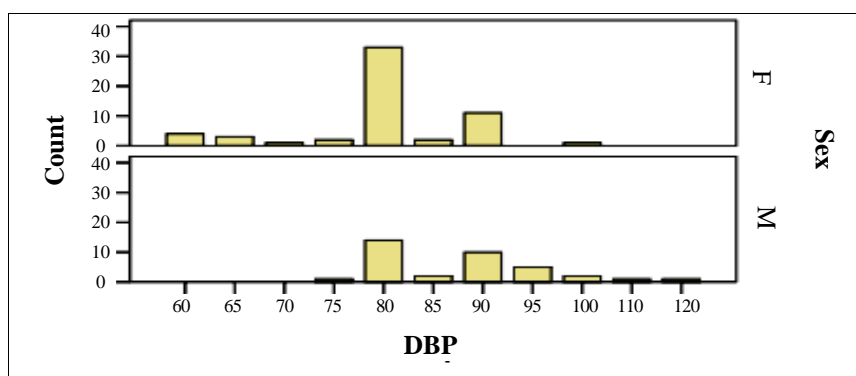


Figure 2. Diastolic blood pressure (DBP) by gender

**Table 1.** Mean systolic and diastolic blood pressure (SBP and DBP) of patients

Sex	SBP (mmHg)		DBP (mmHg)	
	Mean	Range	Mean	Range
Female	29.65	100-170	79.91	60-100
Male	144.72	120-200	88.06	75-120
Total	135.48	100-200	83.06	60-120

**Table 2.** Reasons for not using drugs

Sex	Reason		
	Denial	Forgetfulness	Lack of drug
Males	72.46%	24.42%	3.12%
Females	18.49%	76.62	4.89%

**Table 3.** Rates of using one and more drugs in treatment of hypertension

Number of drugs	Frequency	Percent	Valid percent	Cumulative percent
0	10	10.8	10.8	10.8
1	46	49.5	49.5	60.2
2	26	28.0	28.0	88.2
3	10	10.8	10.8	98.9
4	1	1.1	1.1	100.0
Total	93	100	100	

**Table 4.** Mean systolic and diastolic blood pressure (SBP and DBP) using different treatment modalities

	SBP (mmHg)	DBP (mmHg)
Multidrug treatment	129.85	79.61
Single-drug treatment	142.27	85.02

Finally, 93% of patients considered the gender of health workers to be important and preferred to be visited by health workers of the same sex.

### Discussion

Based on the obtained information in this study, the number of hypertensive women in the Health House was higher than men since men disliked to refer to the health center and preferred to receive care from male health workers due to cultural and religious backgrounds. As a result, hypertensive men were not appropriately diagnosed and hence experienced more complications of hypertension. However, even with male health workers assessing male patients, fewer men than women received health care services.

Comparison between different treatment modalities revealed multidrug treatments to be in more effective than single drug therapy in controlling hypertension.

#### Suggestions

According to increasing knowledge about hypertension and its complications, the role of proper blood pressure control in decreasing morbidity and mortality is undeniable.

Cultural and religious attitudes should be considered more carefully while treating male patients. They should in fact be encouraged to refer

to health centers to receive both services and educations.

Early work up in health centers would help earlier diagnosis and proper controlling of the disease. This will in turn prevent the disabling complications of hypertension and decrease social, economical, and mental costs of hypertension for individuals and the society.

### Conflict of Interests

Authors have no conflict of interests.

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