

Health Beliefs of Hypertensive Patients in a Family Medicine Residency Program

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This paper presents the results of a survey of the hypertensive patient population in a university family medicine practice to determine health beliefs, patient perceptions of the severity of their condition, stated levels of compliance to drug regimens, frequency of drug side effects, and frequency of physician discussions of drug side effects and diet. Health beliefs were then associated with diastolic hypertension and increase in medication dosage over a four-month period. Results of the survey sharpen the focus of patient education efforts by the family physician on specific attitudes, beliefs, and treatment issues which are most appropriate for the hypertensive patient. The physician may improve his/her management of hypertensive patients by: (1) anticipating prevalent myths and misconceptions which patients have concerning hypertension; (2) alleviating patient anxiety by stressing that control of blood pressure decreases the likelihood of complications; (3) effectively communicating to each patient the current status of his/her condition at each visit; and (4) initiating discussion of side effects through direct questioning for those effects most frequently seen.

The problem of noncompliance by hypertensive patients is a public health problem of large proportions. Previous research has shown that non-compliance is not related to income, education, intelligence, knowledge of the disease, or severity of the disease.^{1,2} Other research has shown the difficulty which physicians have in distinguishing which patients are noncompliant.³ A number of studies have demonstrated that one's beliefs about one's illness and its treatment can influence compliance.⁴⁻⁷ A relevant curriculum of education for hypertensive patients, if it is to have an impact upon compliance, must be cognizant of existing

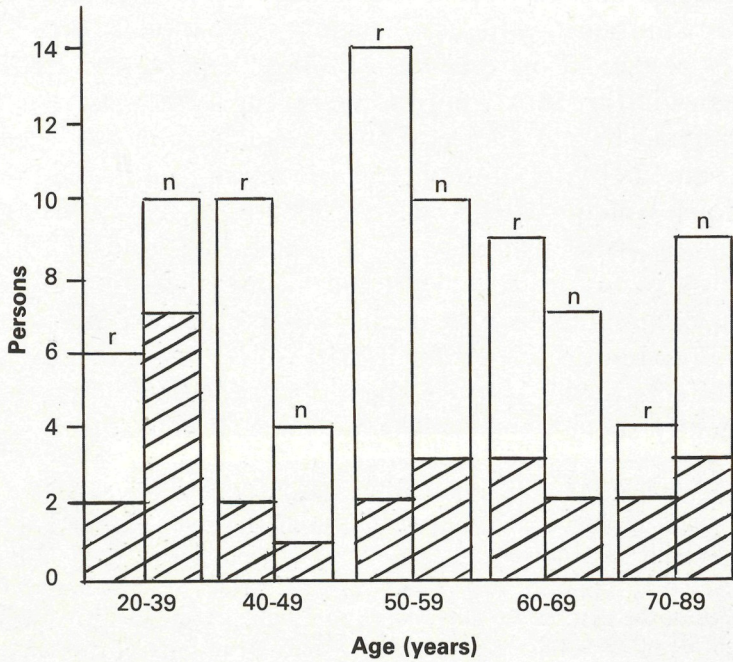
health beliefs prevalent in a given patient population. The goals of the study were to: (1) determine the health beliefs of a group of hypertensive patients; (2) determine stated levels of compliance with drug regimens, frequency of side effects, and the role of cost of medications; (3) assess physician intervention via discussion of diet and drug side effects; and (4) study the relationship of health beliefs to diastolic hypertension over a four-month period.

Materials and Methods

The Family Medicine Information System (FMIS) was utilized to provide an original list of

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Characteristic	Responders: n=43	Nonresponders: n=39
	Responders	Nonresponders
Total	43	39
Female	32	25
Male	11	14
Caucasian	28	25
Negro	12	10
Hispanic	3	4
Oriental	1	1
Living situation:		
Alone	21	12
With spouse	6	10
With children	5	5
With spouse and children	11	11



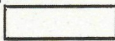

Graph key: Responders=r
 Nonresponders=n
 Female 
 Male 

Figure 1. Demographic characteristics of questionnaire responders and nonresponders

Table 1. Health Beliefs of Hypertensive Patients		
Belief	Answers	
	Yes	No
Patient concerns with hypertension treatment:		
I have to take medicines every day	20	23
I worry about my chances of stroke and heart attack	22	21
I can't eat everything I want to any more	11	32
I have to visit the doctor so often	9	34
It costs a lot of money	13	30
Having high blood pressure doesn't bother me	16	27
Patient fears of complication of hypertension:		
Stroke	22	21
Heart attack	21	22
Kidney disease	15	28
Feeling run down	10	23
Impotence	4	39
Nosebleeds	4	39
Drug addiction	1	42
Perceived benefits of controlling hypertension:		
I would be less likely to have a stroke	34	9
I would be less likely to have a heart attack	32	11
I would feel better	24	19
I would have more energy and pep	16	27
I would get fewer dizzy spells	13	30
Believed causes of hypertension:		
Emotional worry	34	9
Overweight	33	10
Too much salt in diet	31	12
Fatty foods, cholesterol	28	15
Heredity	22	21
Old age	16	27
Lack of exercise	16	27

hypertensive patients.⁸ From this original set of 194 patients, 54 were excluded because they were no longer active with the clinic, 40 were excluded because of inaccurate coding, and 3 were recently deceased. The remaining 85 patients received a two-page questionnaire by mail with a cover letter explaining the research. Nonresponders were sent a follow-up post card requesting their participation. The questionnaire was developed by the author based upon information provided by the National High Blood Pressure Education Program, a review of the compliance literature, and

compliance oriented interviews with three hypertensive patients from the practice.

Forty-five patients (53 percent) responded to the questionnaire. Demographic data from the FMIS was not available for two of these patients, therefore *the majority of data was analyzed* for 43 respondents. Demographic data for 39 of the 40 nonresponders were obtained to determine whether there were any significant differences between the responding and nonresponding groups (Figure 1). Data analysis was performed with punched cards which were sorted by hand.

Table 2. Patient Beliefs about Hypertension

Belief	Answers	
	True	False
I only need high blood pressure medicine when I have a headache, feel dizzy, or feel sick	1	42
When I am calm and relaxed my blood pressure comes down	31	12
If I do the other things the doctor says, I can skip taking my medications	0	43
Once I have high blood pressure, it usually means I will have to take medicine to control it for the rest of my life	33	10
Everyone with high blood pressure will some day have a heart attack	3	40
I can tell when my blood pressure is high	17	26
Only nervous and tense people have high blood pressure	2	41

Medical records of the 43 responders were reviewed for the four-month period following mailing of the questionnaire. Diastolic blood pressures, increase in dosage of antihypertensive medication, and addition of second line medications were recorded.

Results

Health Beliefs

The most bothersome aspects of having hypertension are: anxiety about increased chances for stroke and heart attack, necessity of taking medicines daily, and the cost of medication (Table 1). Thirty-seven percent of the patients indicated they were not bothered by having hypertension. Principal fears of these patients were appropriately of stroke (51 percent), heart attack (49 percent), and kidney disease (35 percent). Principal benefits to be derived from treatment were: decreased likelihood of stroke (79 percent) and heart attack (74 percent). The complications of uncontrolled blood pressure are well known to these

patients. Virtually all were aware of the danger of stroke (100 percent) and heart attack (98 percent), while 67 percent were aware of potential kidney disease. It is interesting to note that while nearly all patients believe stroke and heart attack are complications, only about three fourths see decreased chances of these complications as a benefit of treatment, and only half of patients have a definite fear of these complications.

Seventy-nine percent of patients believed that hypertension is caused by emotional worry. The other most frequently believed causes of hypertension were obesity and high salt diet. The word hypertension was correctly understood to mean high blood pressure by 81 percent of patients. The remaining 19 percent believed hypertension meant overactive, overanxious, or nervous conditions. The predominant beliefs held by hypertensive patients (Table 2) are that they can bring their blood pressure down by being calm and relaxed (72 percent), and that they can tell when their blood pressure is high (39.5 percent). The necessity for lifelong medications was understood by 77 percent. The necessity of taking medicines even

Perception*	Total Patients	Perception Correct	Incorrect
Normal	14	6	8
A little high	24	11	13
Severely high	1	0	1
Don't know	4		

*Criteria for chart review:
 Normal=diastolic below 90
 A little high=diastolic 90-110
 Severely high=diastolic over 110

when no symptoms are present is also well understood (98 percent).

Perceived Status of Condition

Patient perceptions of the status of their condition at their last doctor visit were incorrect or unknown in 63 percent of patients (Table 3). It is possible that physician perceptions of normality and abnormality of blood pressure differ from the criteria applied here, and that this would contribute to the patient perceptions recorded here. It is noteworthy that all 13 patients who incorrectly perceived themselves to have blood pressure which was a little high, had normal blood pressure. For this practice of physicians and patients, some more effective means of communication needs to be devised to reassure the patient of normality or caution him/her of continued blood pressure elevation.

Compliance Self-Assessment

Patients were asked to estimate how often they forget to take their medications. Twenty-two responded they never forget, none responded they forget once weekly, and six responded they forget twice weekly. Forty of the 43 patients indicated they never avoid taking their medications because of side effects.

Role of Medications

Patients were asked to report specific side effects which they have had from the medications (Table 4). Forty-six percent of patients denied all

side effects. Painful joints and dry mouth were noted by 21 percent, while dizziness upon standing and weakness were noted by 19 percent. Of the eight patients complaining of weakness, seven were on diuretics that may deplete potassium. Eight of the ten patients complaining of painful joints were on diuretics that may cause hyperuricemia. The frequency of monitoring of potassium and uric acid levels in these patients needs further investigation. Of the 22 patients who noted side effects, 13 had not discussed the topic with their physicians.

Role of Diet

Dietary regulation of blood pressure is not a highly utilized mode of therapy in this group of patients. Dietary recommendations were received by 37 percent of patients. Discussion with resident physicians revealed that many prefer to administer a salt depleting diuretic rather than to burden the patient with severe dietary salt restrictions.

Association of Health Beliefs with Control of Blood Pressure

Chart review revealed that 21 of the 43 patients had diastolic blood pressures over 90 during the four-month period following administration of the questionnaire. Seven patients received increased doses of medication, while only two patients received addition of a second-line drug. Chi-square tests were performed to look for association between the presence of diastolic hypertension and

Table 4. Reported Frequency of Side Effects (43 total patients)

Side Effect	Positive Responses
Tiredness	13
Painful joints	9
Dry mouth	9
Dizzy when I stand up	8
Weakness	8
Headaches	7
Depression	6
Inability to concentrate	5
Diarrhea	5
Upset stomach	3
Impotence	2
No side effects	20

the holding of specific health beliefs (Table 5). Curiously, it appears that anxiety and fear of the complications of hypertension are associated with poor blood pressure control. Patients who perceived benefits of decreased chance of stroke and heart attack were also more likely to have poor control. One might think that the holding of these appropriate beliefs, a stated goal of many patient education programs, would result in improved blood pressure control. Poor control was not significantly associated with other health beliefs, age, sex, race, presence of side effects, physician discussion of side effects, perception of blood pressure status on last visit, or receiving dietary recommendations.

Varying Beliefs with Age, Sex, and Race

Demographic study of patients who did not respond to the questionnaire (Figure 1) indicates that the nonresponding group is demographically similar to the responding group.

Health beliefs were held by nearly equal proportions of patients of each age group with the following exceptions: Those in the age group 40-to-49 years (70 percent) and those 50-59 years (57 percent) were more likely to worry about their chances of stroke and heart attack. Those in the 40-to-49 years age group (80 percent) were more likely to have a correct perception of their blood pressure at last visit, compared to 33 percent for ages 60-to-69 years and 21 percent for ages 50-to-59 years.

Health beliefs were held by nearly equal proportions of patients of each sex with the following exception: Females (56 percent) were more likely than males (36 percent) to worry about their chances of stroke or heart attack. Females (22 percent) were more likely than males (9 percent) to attach psychological meanings to the word hypertension. The idea that medication must be taken for life was held by more men (88 percent) than women (67 percent). Women (50 percent) were more likely than men (18 percent) to believe they could tell when their blood pressure was high. Women (53 percent) were more likely than men (36 percent) to have diastolic pressure over 90 during the four-month period.

Health beliefs were held in similar proportions by all races with the notable exception that blacks (82 percent) were more likely than whites (61 percent) to believe a kidney problem can result from hypertension. Blacks (91 percent) were more likely than whites (71 percent) to believe that their blood pressure comes down when they are calm and relaxed.

The number of subjects was too small to determine significant effects of family situation upon health beliefs or other parameters studied.

Conclusions

Health beliefs of a group of hypertensive patients have been described. Patients were observed to have a high degree of awareness of the complications of hypertension. The association of poor control with beliefs concerning anxiety about stroke and heart attack is troublesome in that these concepts are often central to hypertensive patient educational efforts. Is it possible that the patients with increased anxiety and dis-ease over their condition may actually exacerbate the condition?

Incorrect or unknown perceptions of the status of their condition by 63 percent of patients indicates a definite need for improved physician-patient communication in this area.

The physician may improve his/her management of hypertensive patients by: (1) anticipating prevalent myths and misconceptions which patients have concerning hypertension; (2) alleviating patient anxiety by stressing that control of blood pressure decreases the likelihood of complications; (3) effectively communicating to

Table 5. Association of Health Beliefs with Diastolic Hypertension Over a Four-Month Period

Belief		Chi-Square Table		Chi Square	P Value
		diastolic			
		>90	<90		
I worry about my chances of stroke and heart attack.	yes	15	7	6.72	<.01
	no	6	15		
Are you afraid something serious will happen to you because you have high blood pressure?	yes	14	5	8.62	<.01
	no	7	17		
Afraid of heart attack?	yes	15	6	8.38	<.01
	no	6	16		
Afraid of stroke?	yes	16	6	9.79	<.01
	no	5	16		
Afraid of kidney disease?	yes	12	2	12.75	<.01
	no	8	20		
Is the cost of the medicine a problem for you?	yes	7	16	9.8	<.01
	no	16	6		
Perceived benefit of treatment: I would be less likely to have a heart attack.	yes	19	13	5.56	<.02
	no	2	9		
Perceived benefit of treatment: I would be less likely to have a stroke.	yes	20	14	6.47	<.02
	no	1	8		

patients the current status of their condition at each visit; and (4) initiating discussion of side effects through direct questioning for those effects most frequently seen.

It is hoped that this survey provides data which sharpen the focus of the family physician upon attitudes, beliefs, and treatment issues which should comprise an appropriate agenda for hypertensive patient education.

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