

# Hypertension-related knowledge, attitudes, and behavior among hypertensive patients in a community pharmacy in Sivas, Türkiye: A regional descriptive study

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## ABSTRACT

This study scrutinized hypertension-related knowledge, attitudes, and behavior among patients with hypertension. It was performed with 88 hypertensive patients in a community pharmacy in Sivas for one month. Suitably designed and pretested questionnaire was used. Chi-square test was used and  $p < 0.05$  was accepted as significant. More than half of the participants correctly explained that people have a family history of hypertension, diabetes, and overweight people. Among preventive factors, only being physically active, reduced alcohol intake, and smoking cessation had significance between males and females. When examined attitude, participants opined that hypertension was a chronic disease that needs to be treated and can be controlled for life long and reduction of alcohol intake, and smoking cessation can prevent hypertension. Behavioral parameters such as regular monitoring of blood pressure, not smoking and reduction of alcohol intake showed significance between males and females. Participants had good knowledge, while they had poor attitudes and behaviors.

**Keywords:** Hypertension, knowledge, attitudes, behavior

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## INTRODUCTION

Hypertension is a well-known preventable illness and is related with smoking, sedentary lifestyle, and alcohol intake like extrinsic factors <sup>1</sup>. It is a main risk factor for, and increases the prevalence of atherosclerosis, cerebrovascular ac-

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idents, hearth and kidney failure, myocardial infarction, and stroke that leads to millions of deaths in the world <sup>2</sup>. It is considered to be related with large amount of illness and economic problems to the communities, especially in countries with low and middle incomes.

Globally, it is estimated that the rate of hypertension will increase over 29% by 2025. In addition, over 80% of deaths will be caused from hypertension and related to cardiovascular illnesses occur in countries with low and middle income <sup>3,4</sup>. Recent research of nationwide data in Türkiye reported that 40% of hypertensive patient were aware of their condition 31% of patients using drug and 40.3% of patients reached sufficient blood pressure control <sup>5,6</sup>. The main cause of high mortality and disability rates is insufficient control of hypertension <sup>7</sup>. In a study performed in 17 countries, it was stated that 53% of those with hypertension were not aware of it <sup>8</sup>.

Various risk factors like socio-demographic factors, including gender <sup>9</sup>, age and physical activity <sup>10</sup>, urban residence and higher body mass index (BMI) have been found to be associated to hypertension <sup>11</sup>. They are regarded as main factors of the given the professional and social roles in health promotion, hypertension-related knowledge, attitudes and behavior (KAB) of patients became worth investigation. Some studies evaluated the KAB or improvements in KAB after the investigation. In a previous study, it was stated that younger hypertension patients are more knowledgeable about hypertension than the elderly<sup>12</sup>. When comparing general health behaviors, women do better than men <sup>13</sup>.

There have been only restricted studies that focused on the effect of gender on knowledge, attitude, and behavior in the rural areas of Türkiye. Due to the lack of sufficient information on this topic, there is a need to bridge the information gap. The objective of this study was to assess the hypertension-related knowledge, attitude and the behavior of hypertensive participants.

## **METHODOLOGY**

A regional descriptive study, using the suitable designed and pretested questionnaire was conducted to participants (age>18) living in Sivas city, Türkiye. The study was performed in a community pharmacy from September to December 2019. Those under 18-year-old, not giving consent were excluded. Incomplete questionnaires missing information were excluded, too. A priori power analysis was conducted using G\*Power version 3.1.9.4. to determine the minimum sample size required to test the study hypothesis. Results indicates the required sample size to achieve 95% power for detecting a medium effect, at a significance criterion of a  $\alpha= 0.05$ , was N=88 for chi square test. The re-

sults were expressed as mean  $\pm$  SD. Analysis of data was performed by GraphPad Prism v. 5.04 program (GraphPad Software Inc., La Jolla, CA). Data was analyzed by univariate analysis and bivariate analysis (Chi-square and Fisher's exact test).  $P < 0.05$  was regarded as statistically significant. Structured questionnaire has three parts except sociodemographic characteristics. These were hypertension-related knowledge, attitudes towards hypertension and hypertension-related behavior of participants. First, the knowledge section includes general knowledge for its non-communicable illness, normal values of blood pressure, sign and symptoms, diagnosis and treatment, risk factors and preventive measures. Second, the attitude section explains about susceptibility, benefits of prevention and severity of risk factors towards hypertension. Third, behavior section includes preventive practices of hypertension such as regular physical activity, consuming less salty foods, eating less food contain high fat, sufficient consumption of vegetables and fruits, monitoring BP regularly, not smoking cigarette, no or less alcohol intake, controlling body weight and reducing stress.

Those who answered at least 11 knowledge, at least 7 attitude, and more at least 6 behavioral questions correctly were considered to have good knowledge, good attitude and good behavior, respectively.

## **RESULTS AND DISCUSSION**

### **Socio-demographic characteristics of respondents**

A total of 104 respondents participated in this study. After excluding questionnaires missing essential data concerning hypertension knowledge, attitudes and behavior, only 88 (55 female and 33 male) subjects remained for analysis. Demographic characteristics and other factors of the participants were shown in Table 1.

**Table 1.** Sex specific socio-demographic characteristics and other factors of participants related to hypertension

Variables	Male		Female		Total	
	n	(%)	n	(%)	n	(%)
<b>Age</b>						
30-49	5	(15.2)	2	(3.64)	7	(7.95)
50-59	6	(18.2)	16	(29.09)	22	(25)
60-69	11	(33.3)	20	(36.36)	31	(35.23)
70-89	10	(30.30)	16	(29.09)	26	(29.54)
90-	1	(3.0)	1	(1.82)	2	(2.28)
<b>Marital status</b>						
Single	1	(3.0)	2	(3.64)	3	(3.4)
Married	26	(78.8)	37	(67.27)	63	(71.6)
Widowed	3	(9.1)	10	(18.18)	14	(14.8)
Divorced	3	(9.1)	6	(10.90)	9	(10.2)
<b>Education levels</b>						
None	3	(9.1)	8	(14.55)	11	(12.5)
Primary	5	(15.2)	9	(16.36)	14	(15.91)
Secondary	6	(18.2)	13	(23.64)	19	(21.59)
High school	11	(33.3)	15	(27.27)	26	(29.55)
University	8	(24.2)	10	(18.18)	18	(20.45)
<b>Job description</b>						
Unemployed	8	(24.2)	32	(58.18)	40	(45.45)
Employed	25	(75.8)	23	(41.82)	48	(54.55)
<b>Monthly income (\$)</b>						
<100	4	(12.12)	6	(10.91)	10	(11.36)
100-200	16	(48.48)	27	(49.09)	43	(48.8)
200-300	4	(12.12)	10	(18.18)	14	(15.90)
>300	3	(9.1)	4	(7.27)	7	(7.95)
Not declared	6	(18.18)	8	(14.55)	14	(15.90)
<b>Physical activity</b>						
Sedentary	27	(81.82)	49	(89.1)	76	(86.37)
Mildly active	3	(9.09)	4	(7.27)	7	(7.95)
Moderately active	2	(6.06)	0	(0.0)	2	(2.28)
Extremely active	1	(3.03)	2	(3.63)	3	(3.40)
<b>Body mass index (kg/m<sup>2</sup>)</b>						
Normal (18.5-24.9)	3	(9.1)	4	(7.27)	7	(7.95)
Overweight (25-29.9)	16	(48.48)	30	(54.55)	46	(52.28)

Obese (30≤)	14	(42.42)	21	(38.18)	35	(39.77)
<b>Smoking</b>						
No	22	(66.7)	54	(98.18)	76	(86.36)
Yes	11	(33.3)	1	(1.82)	12	(13.64)
<b>Alcohol intake</b>						
No	11	(33.3)	48	(87.27)	59	(67.05)
Yes	22	(66.7)	7	(12.73)	29	(32.95)
<b>BP control</b>						
No	15	(45.45)	38	(69.09)	53	(60.23)
Yes	18	(54.55)	17	(30.91)	35	(39.77)

When the age distribution of the participants by gender was examined, 60-69 age interval was found most common for male (33.3%) and female (36.36%). Most of the males (78.8%) and females (67.27%) were married. Graduation from high school was the most common among participants with rate of 33.3% in males and 27.27% in females. Employed participants were found 75.8% and 44.82% in males and in females, respectively. Monthly income was 100-200\$ and approximately similar in male (48.48%) and female (49.09%) participants. While 81.82% of males lived sedentary, this rate increased to 89.1% in females. Most of the participants were found as overweight and obese 48.48% and 42.42% in males and 54.55% and 38.18% in females, respectively. Not smoking, not drinking alcohol and blood pressure monitoring were found more in females than males.

### **Hypertension related knowledge**

The results indicated that the rates of correct answers regarding knowledge of hypertension ranged between 44.31 and 89.77% (Table 2).

**Table 2.** Hypertension-related knowledge of participants

Statements	Positive Response						p value
	Male		Female		Total		
	n	(%)	n	(%)	n	(%)	
Hypertension is not a communicable illness	21	(63.64)	51	(92.72)	72	(81.81)	0.0012*
Normal systolic/diastolic blood pressure is 120/80 mmHg	23	(69.68)	30	(54.55)	53	(60.22)	0.1832
Sign and symptoms							
People with hypertension can't always feel symptoms	18	(54.55)	27	(49.09)	45	(51.13)	0.6643
Blurred vision and headache can be signs of very high blood pressure	23	(69.68)	36	(65.46)	59	(67.04)	0.8157
Diagnosis and treatment							
People are diagnosed with hypertension when their systolic/diastolic pressure equals to or is higher than 140/90 mmHg in two separate measurements	21	(63.64)	47	(85.45)	68	(77.27)	0.0336*
Hypertension is not treated by drugs only	22	(66.67)	45	(81.82)	67	(76.13)	0.1262
Patients with hypertension need to use drugs life-long	27	(81.82)	52	(94.56)	79	(89.77)	0.0745
Following people are at risk of hypertension							
Diabetic patients	17	(51.52)	45	(81.82)	62	(70.45)	0.0037*
Overweight people	16	(48.49)	41	(74.56)	57	(64.77)	0.0206*
People have family history of hypertension	17	(51.52)	49	(89.09)	66	(75)	0.0002*
Those who don't exercise regularly	12	(36.36)	27	(49.09)	39	(44.31)	0.2746
Hypertension can be prevented by							
Being physically active	25	(75.76)	52	(94.55)	77	(87.5)	0.0171*
Less consumption of salty and high fatty food	21	(63.64)	44	(80)	65	(73.86)	0.1321
Vegetable and fruit consumption	24	(72.78)	37	(67.27)	61	(69.31)	0.6402
Reduced alcohol intake	22	(66.67)	48	(87.28)	70	(79.54)	0.0289*
Cessation of smoking	23	(69.69)	49	(89.09)	72	(81.81)	0.0429*
Reducing stress	24	(72.78)	38	(69.09)	62	(70.45)	0.8116

Statistical analysis performed by Chi-square (and Fisher's exact) test, showing the difference between male and female for each statement.  $p < 0.05$  is considered statistically significant

Most of the patients had known that hypertension was not a communicable disease ( $p < 0.05$ ). In addition, results showed that risk factors of hypertension (obesity, overweight and family history) were known among participants ( $p < 0.05$ ). Participants stated positive response only diagnosis criteria of hypertension in the diagnosis and treatment part ( $p < 0.05$ ). On the other hand, while cessation of smoking, reduced alcohol intake, and regular physical activity were found significantly relevant to low blood pressure ( $p < 0.05$ ), approximately one-third of the participants did not acknowledge that reducing stress and eating less salty and fatty meal were related to low BP. Moreover, there was no significance between males and females regarding knowledge of hypertension in sign and symptoms criteria ( $p > 0.05$ ).

### **Attitudes towards hypertension**

The rates of positive responses regarding attitudes towards hypertension ranged between 46.59 and 80.68% (Table 3).

**Table 3.** Summary of participants' attitudes towards hypertension

Items	Positive Response N (%)						p value
	Male		Female		Total		
	n	(%)	n	(%)	N	(%)	
If parents are hypertensive, children will have high risk of having disease	18	(54.54)	23	(41.81)	41	(46.59)	0.2761
If people consume salty and high fatty food, they become susceptible to hypertension	25	(75.75)	36	(65.45)	61	(69.31)	0.3488
I think that hypertension is a chronic disease, and it must be treated and controlled life long	20	(60.60)	45	(81.81)	65	(73.86)	0.044*
High blood pressure can cause serious complications	21	(63.63)	42	(76.36)	63	(71.59)	0.2283
People with hypertension should monitor their BP regularly	31	(93.93)	40	(72.72)	71	(80.68)	0.0235*
Smoking cessation can help prevent hypertension	17	(51.51)	50	(90.90)	67	(76.13)	0.0001*
Reducing alcohol intake can prevent hypertension	29	(87.87)	12	(21.81)	41	(46.59)	0.0001*
Controlling body weight can help prevent hypertension	28	(84.84)	43	(78.18)	71	(80.68)	0.5801
Regular physical exercise can help prevent hypertension	25	(75.75)	27	(49.09)	52	(59.09)	0.0153*
Reducing stress is effective for preventing hypertension	23	(69.69)	36	(65.45)	59	(67.04)	0.8157

Statistical analysis performed by Chi-square (and Fisher's exact) test, showing the difference between male and female for each statement.  $p < 0.05$  is considered statistically significant; BP: blood pressure

The results showed that the participants knew that hypertension is a chronic disease that needs to be treated and can be controlled for life long ( $p < 0.044$ ). Among the items, "If parents are hypertensive, children will have high risk of having disease" and "Reducing alcohol intake can prevent hypertension" were the least beliefs (46.59%). Although alcohol intake was one the least believed preventive factors, it was found significantly different ( $p < 0.0001$ ). Smoking cessation was found statistically significant between males and females ( $p < 0.0001$ ).



## Behavior of participants

Table 4 indicated the behaviors of participants. Almost none of women smoked (98.18%) while this rate was found 66.66% in males ( $p < 0.0001$ ). It was significantly found that more than two-third of the participants either did not drink alcohol at all or consumed very little alcohol ( $p < 0.0001$ ). Only 39.77% of participants were engaging with regular BP monitoring ( $p < 0.0424$ ). Contrary to expectation, most of the participants did not properly control fat intake, consumption of vegetables and fruits, and control body weight, reducing stress, about half of the participants did not control salt intake ( $p > 0.05$ ).

**Table 4.** Hypertension-related behaviors of participants

Items	Positive Response N (%)						p value
	Male		Female		Total		
	n	(%)	n	(%)	n	(%)	
Regular physical activity (mild, moderate, and extreme)	6	(18.18)	6	(10.90)	12	(13.63)	0.3540
Consume less salty foods	19	(57.57)	27	(49.09)	46	(52.27)	0.5114
Eating less food contain high fat (margarine, butter, and meat)	5	(15.15)	7	(12.72)	12	(13.63)	0.7574
Sufficient consumption of vegetables and fruits	4	(12.12)	11	(20)	15	(17.04)	0.3954
Monitoring BP regularly	18	(59.40)	17	(30.90)	35	(39.77)	0.0424*
Not smoke cigarette	22	(66.66)	54	(98.18)	76	(86.36)	0.0001*
No or less alcohol intake	11	(33.33)	48	(87.27)	59	(67.04)	0.0001*
Controlling body weight	3	(9.09)	4	(7.27)	7	(7.95)	1.000
Reducing stress	13	(39.39)	14	(25.45)	27	(30.68)	0.2327

Statistical analysis performed by Chi-square (and Fisher's exact) test, showing the difference between male and female for each statement.  $p < 0.05$  is considered statistically significant; BP: blood pressure

To sum up, the study population generally had good knowledge; however, their attitudes and behaviors of hypertension prevention needed great improvement (Table 5).

**Table 5.** Summary of the proportion of the population that met the criteria for a positive response regarding knowledge, attitudes, and behaviors related to hypertension

Item group	Criteria for Positive Response n	Correct items	
			(%)
Knowledge	≥11 out of 17	11	64.70
Attitudes	≥7 out of 10	5	50.0
Behaviors	≥6 out of 9	1	11.11

Current study indicated that hypertension related knowledge and behavior were significantly associated with awareness in rural area. However, most patients enrolled in this study had relatively good hypertension knowledge. Hypertension is a chronic and non-communicable cardiovascular disease. In a study, performed by San and Plianbangchang (2018), three fifth of the participants gave correct answer about the non-communicable nature of the hypertension like our result <sup>14</sup>. In addition, the number of women who gave positive responses to this question was more than those of men, in our study.

This study indicated that most of the patients significantly knew the top and bottom levels for diagnosis. In agreement to result of our study, Anowie and Darkwa stated that 63.8% of respondents correctly explained normal values for tension and bottom and top values for hypertension diagnosis <sup>15</sup>. Contrary to our study, Li et al. stated that nearly 30% of patients were able to correctly identify and were aware of both systolic and diastolic BP measures as diagnostic criteria <sup>7</sup>.

Hypertension is a disease that has little or no signs and symptoms, especially in the early stages. This is why many people go undiagnosed <sup>16</sup>. In a study, only 7% of participants correctly remarked that hypertension was asymptomatic disease <sup>17</sup>. Similar to previous study, only 39.2% knew the symptoms of the hypertension in another study <sup>18</sup>. Consistent with previous studies, only just over half of the participants gave correct answer in our study. Our investigation showed that the majority of patients were overweight and diabetic and also, they were physically inactive. There was a noteworthy result that participants knew that diabetic, overweight and people with family history of hypertension were associated with hypertension. Consistent to our results, different previous studies performed on hypertension stated same risk factors and they confirmed this relationship <sup>19,20</sup>. This finding may be associated with physical conditions and lifestyles of participants in our study. Most of them were overweight and obese who have sedentary lifestyle. In addition, the number of women who answered this question positively in our study was higher than that of men. It has been well known that regular exercise was helpful for reducing blood pressure.

Furthermore, our study revealed that enrolled participants knew whether hypertension was a preventable disease if risk factors were eliminated. In literature, regular exercise is one of the most well-known proven preventive factors to reduce high blood pressure and to maintain it under control <sup>21</sup>. Egan (2017) stated that replacing of sedentary lifestyle with regular physical activity can reduce incident diabetes, decrease high blood pressure. Physical exercise approximately halves heart diseases and related other metabolic diseases <sup>22</sup>. The other important preventive factor is reduction of alcohol intake. In a study by Sefah et al. (2021), hypertension can be prevented by regular physical activity <sup>23</sup>. As is well known, one of the other factors in the development of hypertension is alcohol intake and previous study has emphasized that alcohol consumption clearly contributed to hypertension <sup>24</sup>. Overwhelming evidence supported that cigarette smoking led to various cardiovascular diseases, including hypertension. In a study, the harm of smoking was also highlighted, and researchers stated that hypertensive smokers can develop severe forms of hypertension more than patients who are nonsmokers in this study <sup>25</sup>. Consistent with these studies, our study also reported that reduced/no alcohol intake and not smoking were also effective factor to decrease blood pressure. Our study did not find an association between fruit and vegetable, salt intake and high fatty food and hypertension.

The respondents in this study were found to have poor attitudes towards preventing hypertension as they opined that smoking cessation and reducing alcohol intake can prevent hypertension. This result is supported by a previous study <sup>26</sup>. In addition, almost all of them also agreed that hypertension was chronic disease, and it must be treated and controlled lifelong. In current study, smoking ratios were 33.3% and 1.82% in males and females, respectively; consistent with a different study <sup>27</sup>. In our study, the ratio of nonsmokers and nondrinkers were 86.36% and 67.05%, respectively. These results were supported by another study <sup>28</sup>.

In our study, monitoring BP regularly, not smoke cigarette and no/less alcohol intake were the behaviors that had differences between males and females. Usually, the behaviors in females were better than those in males in our study. Consistent with another study performed before, males had a lower proportion of non-smokers and nondrinkers when compared with females <sup>26</sup>. This study also reported that, 76.9% of participants opined that monitoring of BP regularly was important. Although the rate of giving the correct answer was high, there was no significance between males and females. On the other hand, unlike this study, obtained findings in our study showed that less than half of participants hadn't monitored their BP regularly. However, males had a higher ratio when compared with females, 59.40% and 30.90%, respectively.

### **Study limitations**

The most limitation of this study was study population. Secondly, because current study was performed in one city and one pharmacy of Türkiye and the findings could be dependent on the health education of participants, the outcomes can primarily be applicable for one district in Sivas-Türkiye. In future studies, study population should be increased.

In conclusion, enrolled participants in the study had good knowledge while they had poor attitudes and behaviors on hypertension. Intervention program based on the findings of current study may also be supported, to improve attitudes and to formation of healthy behaviors of community. This study also showed that gender had important effects on hypertension knowledge, attitudes, and behaviors that females clearly had high level of knowledge and behaviors than those of males.

### **STATEMENTS OF ETHICS**

Ethic approval of this study was obtained from Istanbul Medipol University Local Ethical Committee at 01/08/2019 (2019/593).

### **CONFLICT OF INTEREST**

We wish to confirm that there were no known conflicts of interest associated with this publication.

### **AUTHOR CONTRIBUTIONS**

The authors contributed equally.

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