ORIGINAL ARTICLE

ASSESSING ATTITUDES TOWARDS HYPERTENSION PREVENTION IN NORMOTENSIVE INDIVIDUALS WITH AND WITHOUT A FAMILY HISTORY OF HYPERTENSION

Ailede Hipertansiyon Öyküsü Olan ve Olmayan Normotansif Bireylerde Hipertansiyon Gelişiminin Önlenmesine Yönelik Tutumların Değerlendirilmesi

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ABSTRACT

Objective: This study aimed to assess attitudes toward preventing hypertension development in normotensive individuals with and without a family history of hypertension.

Material and Methods: The study is a prospective cross-sectional research conducted at the Family Medicine Outpatient Clinic of Haydarpaşa Numune Training and Research Hospital between May 3, 2023 and July 3, 2023. A total of 208 eligible patients who met the inclusion criteria were enrolled. Sociodemographic characteristics, chronic diseases, medication usage, smoking habits, and family history of hypertension were assessed based on their Attitudes Scale towards Prevention of Hypertension (ASPH) scores. Patients were divided into two groups by their family history of hypertension. Linear regression analysis was utilized to identify predictors of ASPH scores.

Results: 60.1% of participants were female, with a median age of 36 years. 29.3% had at least one chronic disease, and 80.8% had a family history of hypertension. No significant difference in total ASPH scores was found between groups with and without a family history of hypertension (p=0.658). Correlation analysis revealed a positive correlation between age and total ASPH score (rho=-0.163, p=0.019). Multiple linear regression analysis indicated that having a higher education level (p<0.001) were associated with increased total ASPH scores.

Conclusion: The study found that a family history of hypertension didn't influence attitudes towards preventing hypertension, but higher education levels were linked to better prevention attitudes. Thus, informative campaigns should focus on those with a family history of hypertension and lower education levels, as well as the broader community.

Keywords: *Hypertension; Prevention; Attitude; Attitude to Health*

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ÖZET

Amaç: Çalışmada ailesinde hipertansiyon öyküsü olan ve olmayan normotansif bireylerde hipertansiyon gelişiminin önlenmesine yönelik tutumlarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: Çalışma, 3 Mayıs 2023 ile 3 Temmuz 2023 tarihleri arasında Haydarpaşa Numune Eğitim ve Araştırma Hastanesi Aile Hekimliği Polikliniği'nde yürütülen prospektif kesitsel bir araştırmadır. Toplamda, kriterlere uygun 208 hasta çalışmaya dahil edilmiştir. Olguların sosyodemografik özellikleri, kronik hastalık, ilaç kullanımı, sigara içme ve ailede hipertansiyon öyküsü varlığına göre toplam Hipertansiyondan Korunma Tutumları Ölçeği (HKTÖ) puanları yönünden farkları değerlendirilmiştir. Hastalar, hipertansiyon aile öyküsü olanlar ve olmayanlar olmak üzere iki gruba ayrılmış, HKTÖ puanını yordayan faktörleri saptamak için lineer regresyon analizi uygulanmıştır.

Bulgular: Olguların %60,1'i kadındı ve medyan yaş 36 yıldı. Katılımcıların %29,3'ünde en az bir kronik hastalık, %80,8'inin ailesinde en az bir kişide hipertansiyon öyküsü vardı. Ailede hipertansiyon öyküsü grupları arasında toplam HKTÖ puanı bakımından anlamlı farklılık saptanmadı (p=0,658). Yapılan korelasyon analizinde yaş ile toplam HKTÖ puanı arasında istatistiksel olarak anlamlı pozitif yönde ilişki saptandı (r= -0,163, p=0,019). Çoklu lineer regresyon analizi sonuçlarına göre, olguların öğrenimlerinin yüksek öğretim/üniversite düzeyinde olmasının (p<0,001) diğer değişkenlerden bağımsız olarak toplam HKTÖ puanında artış ile ilişkili olduğu belirlendi.

Sonuç: Bu çalışmada kişilerin ailesinde hipertansiyon öyküsü varlığının hipertansiyondan korunma tutumlarını etkilemediği, öğrenim düzeyi artışının ise hipertansiyondan korunma tutumlarında iyileşme ile ilişkili olduğu belirlenmiştir. Bu nedenle ailesinde hipertansiyon öyküsü olan ve öğrenim düzeyi daha düşük olan bireyler başta olmak üzere, toplumun tamamına yönelik hipertansiyondan korunma konusunda bilgilendirici faaliyetlerin yürütülmesi uygun olacaktır.

Anahtar Kelimeler: *Hipertansiyon, Önleme, Tutum, Sağlık Tutumu*

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INTRODUCTION

The World Health Organization reports that high blood pressure is one of the leading risk factors for global mortality. The prevalence of hypertension (HT) among adults worldwide varies between 30% and 45%. HT is the second most commonly diagnosed disease in Turkey and is a global health issue (1). The prevalence of HT in Turkey has been reported to be between 30% and 35% in studies, and this frequency is increasing every year (2).

It has been demonstrated that untreated HT that has not been diagnosed through appropriate screenings and examinations and has not been controlled with appropriate treatment selection increases the risk of aortic dissection, coronary artery disease, renal failure, hemorrhagic and thrombotic stroke, peripheral artery disease, heart failure, and mortality rates (3).

The complications of HT and the associated mortality rates increase proportionally with the severity of high blood pressure. As technological advancements and increased personal awareness contribute to longer lifespans, the inevitability of an increase in the risk and frequency of chronic diseases is evident. This rise in the occurrence of chronic diseases also brings about complications. Complications arising from chronic diseases lead to physical, psychological, and social issues in individuals, resulting in functional health limitations and a decrease in quality of life. The deterioration of functional health status in hypertensive individuals is not solely attributed to increased blood pressure levels but is also influenced by various environmental factors such as age, gender, education, marital status, and regular exercise. The simultaneous negative impact of all these variables cumulatively affects individuals' functional health status adversely (3).

In cases of HT, the frequency of a family history ranges between 35% and 50% (4,5). The presence of hypertensive individuals in the family history is considered a risk factor for the development of HT. If there is a new or existing diagnosis of HT within the family, it is believed that education regarding HT awareness, prevention, and behavior modification would assist in combating HT, which is a global health issue (6-8). The aim of this study is to evaluate the attitudes towards the prevention of HT development in individuals with and without a family history of HT.

MATERIALS AND METHODS

The study is a prospective cross-sectional research conducted at the family medicine outpatient clinic of a training and research hospital. Individuals who met the inclusion criteria and applied to the clinic between May 3, 2023, and July 3, 2023, were included in the study. The study received approval from the Clinical Research Ethics Committee of the training and research hospital on April 3,2023, with decision number 2023/57. The research was conducted in accordance with the principles of the Helsinki Declaration, and written consent was obtained from all included patients.

On average, 300 patients visit the Family Medicine Outpatient Clinic of Haydarpaşa Numune Training and Research Hospital each month, making a total of 600 patients over two months. It was estimated that 30% of these patients (approximately 180 individuals) would be excluded based on the prevalence of HT in Turkey, leaving 420 individuals as the study population. With simple random sampling method, the calculation for the sample size yielded a minimum of 201 patients to be included in the study. However, the study was conducted with 208 participants. Volunteers aged 18 and above were included in the study, while those with mental disorders severe enough to hinder communication, active hypertensive patients, and/or those who had previously received antihypertensive treatment were excluded from the study. Patients were divided into two groups: those with a family history of hypertension and those without.

Patients were approached face-to-face, and the Informed Consent Form based on voluntarism was signed beforehand. A data collection form including questions about age, gender, education level, duration of education, chronic illnesses, and smoking status was completed. Subsequently, the Attitudes Scale towards Prevention of Hypertension (ASPH) was administered to evaluate attitudes towards the prevention of HT development.

ASPH, developed by Albayrak and Şengezer in 2022, comprises 26 items and 5 factors. Each item is rated on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Scores on the scale range from 26 to 130. An increase in scores on the scale indicates an enhancement in participants' attitudes towards preventing HT.

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The analyses of the study were conducted using SPSS 26,0 software. Categorical data are presented as numbers (percentages), while continuous numerical variables are described by their median, minimum, and maximum values. Normal distribution was assessed using the Shapiro-Wilk test, which revealed that the data were not normally distributed. For the comparison of total ASPH scores between two groups, the Mann-Whitney U test was employed, and for comparisons involving more than two categories, the Kruskal-Wallis test was used. Pairwise comparisons were conducted to determine statistically significant groups in variables found to be significant, and p-values were adjusted using the Bonferroni correction.

Spearman correlation test was used to evaluate the distribution relationship of continuous numerical variables. Multivariable linear regression analysis (using the enter method) was conducted to identify independent factors associated with an increase in total ASPH scores. A p-value below 0,05 was considered statistically significant for determining significance.

RESULTS

The study included 208 participants, of whom 60.1% (n=125) were female, 50.5% (n=105) were married, and 58.2% (n=121) were college/university graduates. The median (min-max) age of the participants was 36 (18-78) years, and the median (min-max) body mass index (BMI) was 24.42 (17.36- 42.97) kg/m2. The median (min-max) total ASPH score was 109 (49-130). Approximately 29.3% (n=61) of the participants had at least one chronic illness, while 19.2% (n=49) were taking at least one medication regularly. 41.4% (n=86) of individuals were smokers, and 80.8% (n=168) had a family history of HT in at least one relative. The comparison of participants' demographic characteristics and total ASPH scores is presented in Table 1.

A negative and weak correlation was found between participants' total ASPH scores and age (rho=-0.163, p=0.019). The correlation analysis between total ASPH scores and other parameters is presented in Table 2.

According to the multivariable linear regression model, it was determined that having a higher education level (p<0.001) was independently associated with an increase in total ASPH scores, after adjusting for other variables (Table 3).

DISCUSSION

In the study, it was observed that 80.8% of our participants had a family history of hypertension (HT), yet we did not find a significant association between having a family history of HT and attitudes toward HT prevention.

HT is one of several significant chronic diseases influenced by family history (9). The presence of a family history of HT is known to be associated with an increase in both the prevalence and incidence of HT (10,11).

Therefore, individuals with a family history of HT should be included in interventions aimed at preventing and managing HT. According to the 2017 American College of Cardiology/American Heart Association HT guidelines, non-pharmacological interventions such as weight loss, healthy eating, reducing dietary sodium intake, increasing dietary potassium intake, physical activity, and reducing alcohol consumption are recommended for the prevention and treatment of HT, in addition to pharmacological approaches (12).

The Control of Hypertension and Other Risk Factors to Prevent Stroke in Northeast China Urban Areas (CHPSNE) study demonstrated that a family history of HT is associated with better awareness and management of HT (13). In the Study on Ethnicity and Health (SUNSET) conducted among Surinamese individuals in the Netherlands, a family history of HT was associated with better HT awareness and treatment among Dutch ethnic groups, while it was linked to better blood pressure control among African ethnic groups (14). A study conducted in France also found a significant association between a family history of HT and the risk of cardiovascular disease (CVD) (15). Additionally, there are studies indicating an increased risk of coronary artery disease or cardiovascular mortality in individuals with a family history of HT.

Özdemir et al., using the AHPS, found that individuals with a family history of HT had better attitudes towards HT prevention, which differs from our study findings. The authors interpreted this finding as possibly stemming from the familiarity of individuals with a family history of HT with the disease and their experience gained through family members.

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Table 1. Comparison of ASPH Total Scores in Independent Variable Groups

Variables		n (%)	ASPH Total Scores Median (min- max)	*p*
Gender	Female	125(60.10)	112 (53 - 130)	**0.031***
	Male	83(39.90)	106 (49 - 130)	
Education Level	Illiterate	1(0.48)	100 (100 - 100)	
	Primary School	11(5.29)	94 (70 - 117)[a]	**<0.001****
	Middle School	20(9.62)	100,5 (49 - 112)[a]	
	High School	55(26.44)	106 (53 - 129)	
	College	26(12.50)	109 (94 - 130)[b]	
	University	95(45.67)	115 (89 - 130)[b]	
Marital Status	Married	105(50.48)	109 (49 - 130)	
	Single	79(37.98)	111 (78 - 129)	0.067**
	Widowed	11(5.29)	100 (78 - 115)	
	Divorced	13(6.25)	104 (80 - 119)	
Income Level	Below Minimum Wage	27(12.98)	104 (53 - 129)[a]	**<0.001****
	Minimum Wage	63(30.29)	105 (49 - 128)[a]	
	Double Minimum Wage	58(27.88)	110 (70 - 130)	
	Triple Minimum Wage or Above	60(28.85)	114 (70 - 130)[b]	
Chronic Disease	None	147(70.67)	109 (49 - 130)	0.339*
	Present	61(29.33)	109 (53 - 130)	
Regular Medication	None	168(80.77)	109 (49 - 130)	0.635**
	Present	49(19.23)	109 (53 - 130)	
	Antidiabetic	13(6.25)	100 (70 - 119)	
	Asthma, COPD	2(0.96)	114 (104 - 124)	
	Other	25(12.02)	115 (53 - 130)	
Smoking	Non-Smoker	110(52.88)	111 (53 - 130)	0.220**
	Current Smoker	86(41.35)	107 (49 - 128)	
	Former Smoker	12(5.77)	110,5 (85 - 115)	
Family History of Hypertension	Absent	40(19.23)	112,5 (70 - 129)	0.658**
	Present	168(80.77)	108 (49 - 130)	

*Mann Whitney U test, **Kruskal Wallis test, Abbreviations: ASPH: Attitudes Scale towards Prevention of Hypertension, DM: Diabetes Mellitus, COPD: Chronic Obstructive Pulmonary Disease, a,b: Different groups marked with different letters indicate statistically significant difference.

Table 2. Correlation between Total ASPH Score and Other Parameters

		ASPH Total Scores	
Variables	Median (min -max)	rho	p
Age (years)	36 (18-78)	-0.163	0.019
Height (m)	1.70 (1.50-1.92)	0.062	0.376
Body Weight (kg)	69 (45-110)	-0.068	0.328
Body Mass Index(kg/m^2)	24.42 (17.36- 42.97)	-0.125	0.071

rho: Spearman Correlation Coefficient, Abbreviations: ASPH: Attitudes Scale towards Prevention of Hypertension, m: Meter, kg: Kilogram

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Table 3. Factors Independently Associated with Increase in Total ASPH Score, Multiple Linear Regression Analysis

	β	Standard Error	Standardized β	t	p	95.0% Confidence Interval for β	
						Lower	Upper
Constant	83.379	12.101	-	6.890	<0.001	59.515	107.244
Family History of Hypertension	0.097	2.120	0.003	0.046	0.963	-4.083	4.278
Age (years)	0.042	0.069	0.047	0.609	0.543	-0.093	0.177
Education Level	4.315	0.859	0.421	5.023	<0.001	2.621	6.009
Height (m)	0.010	0.071	0.010	0.140	0.889	-0.130	0.150
Weight (kg)	-0.105	0.088	-0.102	-1.194	0.234	-0.277	0.068
Gender	-1.021	2.345	-0.038	-0.435	0.664	-5.645	3.603
Marital Status	-0.887	1.024	-0.057	-0.866	0.387	-2.908	1.133
Income Level	1.722	0.986	0.134	1.747	0.082	-0.222	3.666
Chronic Disease	0.576	1.945	0.020	0.296	0.768	-3.260	4.412
Smoking Status	-0.814	1.083	-0.048	-0.752	0.453	-2.949	1.321

R2=0,212; F=7,180; p<0,001, Abbreviations: ASPH: Attitudes Scale towards Prevention of Hypertension, m: Meter, kg: Kilogram

Additionally, they emphasized that these individuals may have more proactive attitudes towards preventing this disease as they are part of the group at risk for HT (17). Our analyses in this study showed no significant relationship between a family history of HT and participants' attitudes towards HT prevention. This study indicates the need for more education on the importance of healthy behaviors and attitudes for individuals with a family history of HT, given the general knowledge that they are at high risk for HT. The results of our study underscore the importance of targeted interventions and public campaigns or education to trigger healthy behaviors and regular check-ups for individuals with a family history of HT. The difference observed between the two studies may be due to the higher average age of participants in our study.

In our study, it was determined that the total ASPH score of women was statistically significantly higher compared to men. Wardle et al. reported in their comprehensive study that the majority of women followed any diet program due to their health beliefs and weight control, resulting in healthier food choices compared to men (18). Kateeb's study reported that women exhibited more positive health behaviors compared to men (19). In addition to these health behaviors, a limited number of studies focusing on HT prevention have reported different results between genders. Demaio et al. reported in their study that men had poorer knowledge levels and attitudes towards HT (20). However, Özdemir et al. found in their study that attitudes towards HT prevention were not associated with gender (17). In line with the general findings of previous studies, it can be said that in our study, women had more positive attitudes towards HT prevention. Therefore, organizing awareness-raising education specifically targeting men might be beneficial.

Having a higher education level (college/university) was found to be independently associated with improvement in attitudes towards HT prevention in the present study, irrespective of other variables. Research on the causal effect of education on health has yielded mixed results. Brunello et al. found in their study that education level had a protective effect on the BMI of European women (21). In their study investigating the causal effect of education on health, Brunello et al. demonstrated that education improved health attitudes and behaviors for European men and women aged 50 and over, showing a protective effect against disease (22). Studies evaluating attitudes and behaviors towards HT prevention generally show, consistent with our study, that higher education level is associated with better attitude relationships. Gong et al.'s study found that individuals with at least a high school education had higher levels of knowledge about HT prevention, but education level did not have an effect on attitudes and behaviors. They did not comment on this difference in their study (23). Demaio et al. reported that individuals with lower levels of education

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had poorer knowledge and attitudes towards HT (20). Buang et al. reported in their study that they did not find any difference in attitudes towards HT prevention among different educational level groups (24). When examining studies that utilized the ASPH, Özdemir et al. concluded that individuals with a high school or university education had better attitudes towards HT prevention compared to those with lower levels of education (17). When considering the results of our study alongside previous research, it is suggested that individuals with higher levels of education are more knowledgeable about health-related issues, thus their attitudes towards HT prevention may be more favorable. Additionally, our study found a statistically significant difference in total ASPH scores according to income level, with a tendency for ASPH scores to increase as income level rises. Oreopoulos et al. associated the increase in education level with an increase in income. In our study, the reason for the higher attitudes towards HT prevention among individuals with higher income levels may be their higher education levels compared to the general population.

In present study, 41.35% of individuals were current smokers, and no significant difference was found in attitudes towards HT prevention between smoker and non-smoker groups. While some studies have reported a significant relationship between attitudes towards HT prevention and smoking. In Rahman et al.'s study, 98,5% of adults advocated avoiding smoking to prevent HT (25). In another study examining individuals' preventive attitudes and behaviors, 68% of participants indicated that quitting smoking would help prevent HT (26). In Özdemir et al.'s study, the frequency of smoking was not reported. However, it was found that smokers had weaker attitudes towards preventing HT (17). Albayrak's validity-reliability study reported that 35.1% of the participants smoked cigarettes (2). The frequency of smoking observed in our study is relatively higher than that reported in other studies conducted in Turkey. This may be attributed to the rising prevalence of smoking and the specific characteristics of the region where our study took place.

Attitudes towards HT prevention did not significantly differ based on the presence of chronic illness in our study. Ozdemir et al.'s study included participants who were all alexithymic, psychiatric illnesses were excluded, and other chronic illnesses were not considered (17). Other studies that evaluate attitudes towards HT prevention based on different criteria similarly either did not assess the effect of other chronic illnesses on attitudes towards HT prevention or reported that it had no effect (25,27). Our study's findings align with those of previous research. We observed that the presence of additional illnesses does not significantly impact individuals' attitudes toward HT prevention.

This study has some limitations, as it included only certain socio-demographic and clinical characteristics in the analysis. Unrecorded confounding factors, such as participants' knowledge about HT, living standards, prior education on HT, interactions with relatives with a history of HT, or overall health literacy, may have influenced the results. Variations in these factors could potentially affect the study's outcomes. Despite these limitations, our study has unique strengths. This study is the first to investigate the relationship between adults in Turkey using the ASPH scale. Insights gained from the results of this study could lead to the development of new perspectives for targeted preventive measures.

CONCLUSION

In conclusion, this study found that the presence of a family history of HT did not influence individuals' attitudes towards HT prevention, while an increase in educational level was associated with an improvement in attitudes towards HT prevention. Additionally, it was observed that female gender and higher income level were also associated with increased attitudes towards HT prevention. Although the participants' level of knowledge was not examined, we believe there may be a significant relationship between HT knowledge level and individuals' attitudes and behaviors towards HT prevention. Therefore, we suggest that informative activities targeting the entire population, particularly men and those with lower educational levels, could enhance awareness and attitudes towards HT prevention. For this purpose, individuals can be educated about HT prevention by incorporating it into the curriculum of local public health education centers, family health centers, healthy lifestyle centers, and schools. As shown in our study, as with many other

healthy lifestyle behaviors, it should not be forgotten that an increase in educational level also has an impact on HT prevention. Taking into account this result, it is important to conduct necessary interventions to increase the community's educational level as a long-term intervention program to improve attitudes towards HT prevention and achieve results over time.

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