

Investigation of the Relationship Between Blood Pressure and Obesity Among the Youth of Balkh Province During 2023

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Abstract

High blood pressure and obesity are two global health problems and are currently prevalent throughout the world. These problems are of particular concern among young people, as they can lead to serious problems throughout life. High blood pressure is one of the most common and important human problems, and almost a quarter of all deaths in the elderly are the result of high blood pressure or its complications. The statistical population of this research was young people (20-30 years old) of the first, second and third districts of Mazar-e-Sharif city in terms of height, weight and blood pressure. . The initial measures were taken by the doctor. The weight of young people was measured with clothes, height without shoes. Blood pressure was measured after 5 minutes of rest and in a sitting position with a needle sphygmomanometer and placing a stethoscope under the appropriate cuff. This research is based on (80) people who were selected randomly; There have been. The findings showed that among the respondents, there were (60) men and (20) women, and the average height and weight of women was reported to be higher than that of men. . Therefore, obesity is one of the determinants of blood pressure in young people and adolescents, and in the present study, different weight groups had significant differences in blood pressure. The average systolic pressure in girls was significantly higher than boys. Weight group and gender were significantly and independently related to systolic blood pressure and there was no interaction between weight group and gender. A significant difference between the average systolic blood pressure of overweight people and people with normal zone has been obtained. The systolic blood pressure of girls is significantly higher than that of boys, and weight group and gender are significantly and independently related to systolic blood pressure. The average diastolic pressure was not observed with weight group and sex.

Keywords: Systolic, Diastolic, Blood Pressure, Obesity, Progeny, Youth

Introduction

High blood pressure is one of the most common and important human problems, and almost a quarter of all deaths in the elderly are the result of high blood pressure or its complications. More than 85 million people in the United States have high blood pressure or are being treated with antihypertensive drugs. It is also estimated that hypertension goes undiagnosed in 50% of adults; Because it is asymptomatic and the only way to diagnose it is to measure blood pressure by chance (Shakranian, 1389: 14). Obesity is a major public health problem, not only in developed countries but also in developing countries. Obesity is associated with numerous medical and psychological consequences for children and adolescents, which adds to its importance (Khani et al., 2015: 45).

The importance of high blood pressure, like other major non-communicable diseases, is increasing in the Mediterranean region. This disease affects up to 25% of adults in some countries. High blood pressure makes people susceptible to complications such as cardiovascular diseases and kidney dysfunction. Several factors have

an effect on blood pressure, such as: medications, arm and body position, noise, high temperature, tight clothing, inappropriate equipment, anxiety, talking, etc. Therefore, it is necessary to minimize the factors affecting blood pressure measurement as much as possible in order to prevent the measurement error (Shokranian, 1389: 14).

Youth and adolescents should be evaluated for high blood pressure annually at the age of three at each visit if risk factors are present (Riley, et al, 2018). High blood pressure is currently more common in low-income and middle-income countries than in high-income countries (Zhou, et al, 2021). Non-communicable diseases and their risk factors are the main cause of death in 2019, accounting for 74.3% of deaths worldwide, and this disease is also spreading in Afghanistan (Neyazi et al, 2023).

High blood pressure means a high level of pressure caused by blood hitting the walls of the arteries. Arteries are the vessels that carry blood from the heart to all parts of the body. Blood pressure is determined by two numbers. Systolic blood pressure (the top number) represents the pressure exerted on the walls of the arteries when the heart contracts, and diastolic blood pressure (the bottom number) represents the pressure exerted on the walls of the arteries when the heart muscles relax (between each heartbeat). High blood pressure causes complications such as heart disease, kidney failure, arteriosclerosis, eye damage and stroke.

Normal blood pressure should be less than 120/80. If the blood pressure is between 80.120 and 139.899, a person is at risk of high blood pressure, and blood pressure 90.140 and above indicates hypertension. During pregnancy, the blood pressure of pregnancy, naturally, should be less than 120/800. High blood pressure causes complications such as heart disease, kidney failure, arteriosclerosis, eye damage, stroke and brain damage.

Causes of high blood pressure

There are many reasons for high blood pressure; But the exact cause is not known.

Environmental Reasons

Food habits and lifestyle can be mentioned among the factors that increase blood pressure. Some of these factors are:

- Smoking
- Overweight and obesity
- Lack of physical activity
- High consumption of salt and sensitivity to sodium
- Alcohol consumption
- Stress
- Age increasing
- Genetic factors
- Disorders
- Adrenal gland and thyroid
- Sleep disorders
- Chronic kidney diseases
- Vitamin D deficiency

Genetic causes of high blood pressure

In many families, high blood pressure is a hereditary disease. The results of many researches have shown the effect of some genes and genetic mutations in high blood pressure. Of course, cases of high blood pressure due to genetic factors account for only 2-3% of all cases of this disease.

Biological causes of high blood pressure

Disturbance of water and salt balance in the body: normally, the kidneys are responsible for balancing the water and salt in the body, and they do this by maintaining sodium and water and excreting potassium. If this kidney function is disturbed, the volume of blood in the body increases, which causes high blood pressure.

Renin, angiogenesis, aldosterone system problems: The renin-angiogenesis-aldosterone system in the body is responsible for the production of angiogenesis and aldosterone hormones. Angiogenesis hormone causes blood vessels in the body to narrow, which increases blood pressure in the body. Aldosterone affects the kidney's function in water and salt retention. The increase in the aldosterone hormone in the body affects the functioning of the kidneys and causes an increase in blood volume and, as a result, an increase in blood pressure.

Function of the sympathetic nervous system: The function of the body's sympathetic system has an important effect on regulating blood pressure in the body. This system is effective on heartbeat rhythm, breathing rhythm and blood pressure. Researchers are investigating how an imbalance in the sympathetic system affects high blood pressure.

The function and structure of the body's vessels: changes in the function and structure of the small or large vessels of the body can cause high blood pressure. Angiogenesis hormone and the body's immune system can cause constriction and narrowing of the body's blood vessels, which affects blood pressure.

Other diseases: Other causes of high blood pressure include diseases such as sleep apnea, thyroid disorders, and certain tumors.

Background

Mojahedi et al. (2014) investigated the prevalence of high blood pressure in young people and determined its related risk factors in Mashhad. This descriptive cross-sectional study was conducted in Mashhad from 1389-1390. Descriptive population-based analysis was performed on 3612 men and women aged 20-29 years old who visited three health centers for premarital evaluations. Blood pressure was measured in all of them and those who had high blood pressure were measured again two weeks later. The results showed that the prevalence of high blood pressure was 1.4% (49 people) in the initial visit. Only 1% (35%) had their blood pressure confirmed at their visit. 24-hour mobile monitoring determined that 40% of the patients of the second visit (14 people) had white coat blood pressure. Among the risk factors, blood pressure had a significant relationship with obesity, alcohol consumption, and cigarettes, but no relationship was found between blood pressure and sleep patterns, tea and coffee consumption, and even family history (Mojahedi et al., 2014: 252).

Shokranian (1382) conducted a study on the influence of foot position on blood pressure in Iran. This research was done with the aim of determining the effect of foot position on blood pressure. For this purpose, the blood pressure of 158 samples of healthy people in different leg positions were compared. First, people's blood pressure was measured while sitting on a stool and stretching their legs on the floor (excellent position) by observing all the necessary points for correct blood pressure measurement and based on the standard checklist. Then 3 minutes later, the person's blood pressure was measured again while placing one leg on the knee of the other leg. The results showed that the average systolic blood pressure was 109.17 in the normal state and 113.40 in the research case. The t-test showed a significant difference between the systolic blood pressure in the normal state and the research case, taking into account the difference of the averages. With age, blood pressure has also increased. Also, diastolic blood pressure did not differ between single and married people, but female people had higher blood pressure than male people (Shokranian, 1389: 13).

Mehrabian et al. (2013) conducted a study to investigate the blood pressure status and its related factors in hypertensive patients who referred to the urban and rural health center of Rasht city. This study is descriptive and cross-sectional, and its statistical population was 150 patients with high blood pressure referred to the 13th and 14th centers of Rasht. The research tool is a questionnaire consisting of 40 questions whose validity was determined through a panel of experts and its internal consistency using Cronbach's alpha (0.71). Data analysis was done using SPSS and descriptive and inferential tests. The findings showed that in this study, 76% of the research community were women and 24% were men. 62.7% had a history of illness and 3.37% had no history of illness and only 75.3% of them went to the hospital to measure blood pressure. The highest average in systolic blood pressure of a previous care (the third and last week when blood pressure was controlled) with a number of 134.64 with a standard deviation of 13.13 and the lowest average in diastolic blood pressure recorded in their file with an average of 79.86 and a standard deviation of 51 It was 8/8 (Mehrabian, 2013: 329).

Mostafavi (2012), investigated the distribution and prevalence of hypertension in Shiraz city. In this research, people over 13 years of age were randomly selected from each household and studied. Blood pressure was measured in the right and left arm in two positions, resting and lying down, and blood pressure greater than or equal to 140.90 mm was considered as high blood pressure. The difference in mean systolic and diastolic blood pressure in men and women who had no history of high blood pressure was statistically significant. Comparing the high blood pressure of the right arm in lying and sitting position, there was a small but significant difference. In addition, along with increasing age, blood pressure also increased in both sexes (Mostafavi, 2013).

Pezhhan et al. conducted a study in 2004 under the title of blood pressure status in the urban and rural population of Iran. This research is a cross-sectional study of 844 people from the population covered by Sabzevar health centers in different age groups based on the cluster sampling method and their systolic and diastolic blood pressure was determined by the standard blood pressure measurement method using ALPK2 sphygmomanometer and Litman phone. According to the findings, 54% of the research units were female and 46% were male, and their average age was 30 years. In terms of blood pressure status, the average systolic blood pressure ranged from 106.8 mm Hg in the age group less than fifteen years to 87.1 ± 22.8 mm Hg in the age group above 55 years. According to Momard's findings, there is an upward trend in systolic and diastolic blood pressure with increasing age (Pezhhan et al., 2004: 96).

Diaz et al. (2017) conducted a systematic review of observational articles on hypertension in school children and adolescents in Argentina in the last 25 years. Studies and reviews that included measuring blood pressure in children and adolescents based on the report on the diagnosis, evaluation and treatment of high blood pressure in middle-aged children and adolescents of the American Academy of Pediatrics. The findings showed that high blood pressure was more common among teenagers than children, and the most common risk included sedentary life (50%), overweight (15.4%), abdominal obesity (13.7%), obesity (11.5%) and smoking (6.5%). (Diaz et al., 2017)

Research Methodology

The statistical population of this research was young people (20-30 years old) from the first, second and third districts of Mazar-e-Sharif city in terms of height, weight and blood pressure. The initial measures were taken by the doctor. The weight of young people was measured with clothes, height without shoes. Blood pressure was measured after 5 minutes of rest and in a sitting position with a needle sphygmomanometer and placing a stethoscope under the appropriate cuff. This research is based on (80) people who were selected randomly; There have been.

Analyze

Table 1. descriptive statistics of respondents by gender

Gender	Frequency		Percentage
	Man	60	75
Woman	20	25	

Table (1) shows the descriptive statistics of the respondents by gender. The findings show that among (80) tons, 60 tons are men and 20 tons are women, which are 75% and 25% respectively.

Table 2. descriptive statistics of respondents by age

	Frequency		Percentage
	Man	25-50	35
	30-25	25	41.6
Woman	25-20	15	75
	30-25	5	25

Table (2) shows the age of the respondents by gender. The findings showed that among (60) men, (35) were aged 20-25 years and (25) were aged 25-30, which is 58.4 and 41.6 percent respectively. Among (20) women, (15) were between the ages of 20 and 25 and (5) were between the ages of 25 and 30.

Table 3. average height and weight of the respondents

	Frequency	average Height	Weight
Man	60	140	70
Woman	20	142	73

Table (3) shows the average height of the respondents. The average height of men is 140 cm and women is 142 cm; And the average weight of men is 70 kg and women is 73 kg.

Table 4. obesity, overweight and normal weight

		Frequency	Percentage
Obesity	Man	8	55
	Woman	10	45
with excess weight	Woman	12	60
	Man	8	40
With normal weight	Man	20	91
	Woman	2	9

Table (4) shows the level of obesity, overweight and normal weight of the respondents. Among the respondents, (18) were obese, including (8) men and (10) women. Among overweight people, there are (12) women and (8) men, and recently (20) men with normal weight and (2) women with normal weight have been reported.

Table 5. average and standard deviation of systolic and diastolic blood pressure

Blood Pressure	Fat	Overweight	Normal Weight	The Significance Level
Systolic	15.2 ± 100.3	12.7 ± 113.6	14.2 ± 9.3	< 0.001
Diastolic	8.2 ± 70.8	10.3 ± 69.3	11.6 ± 59.5	< 0.001

Table (5) shows the average and standard deviation of systolic and diastolic blood pressure. The findings showed that the systolic pressure in girls was significantly higher than that of boys. Weight group and gender were significantly and independently related to systolic blood pressure, and there was no interaction between weight group and gender. A significant difference was observed between the average systolic blood pressure between overweight respondents and normal weight respondents.

Conclusion

High blood pressure and obesity are two global health problems and are currently prevalent throughout the world. These problems are of particular concern among young people, as they can lead to serious problems throughout life. High blood pressure is one of the most common and important human problems, and almost a quarter of all deaths in the elderly are the result of high blood pressure or its complications. The findings show that the average systolic pressure in girls was significantly higher than that of boys. Weight group and gender were significantly and independently related to systolic blood pressure, and there was no interaction between weight group and gender. A significant difference was observed between the average systolic blood pressure between the overweight group and the normal weight group. The findings showed that different weight groups had significant differences in terms of blood pressure. Previous studies have also shown that young people gain weight over time, and their blood pressure increases at the same time. Systolic blood pressure in girls is significantly higher than boys, and weight group and gender are significantly and independently related to systolic blood pressure. Also, the average diastolic pressure with weight group and gender has not been observed.

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