

Krzyżanowska Ewa, Rzepecki Kamil, Łuczyk Robert, Wawryniuk Agnieszka, Jędrzejewska Aneta, Zwolak Agnieszka. The level of knowledge of the rural population on risk factors and prophylaxis of hypertension. *Journal of Education, Health and Sport*. 2018;8(11):112-129 eISSN 2391-8306. DOI <http://dx.doi.org/10.5281/zenodo.1472615>  
<http://ojs.ukw.edu.pl/index.php/johs/article/view/6216>

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part b item 1223 (26/01/2017).  
1223 Journal of Education, Health and Sport eissn 2391-8306 7

© The Authors 2018;

This article is published with open access at Licensee Open Journal Systems of Kazimierz Wielki University in Bydgoszcz, Poland  
Open Access. This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author (s) and source are credited. This is an open access article licensed under the terms of the Creative Commons Attribution Non commercial license Share alike.  
(<http://creativecommons.org/licenses/by-nc-sa/4.0/>) which permits unrestricted, non commercial use, distribution and reproduction in any medium, provided the work is properly cited.

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 02.09.2018. Revised: 18.09.2018. Accepted: 27.10.2018.

## The level of knowledge of the rural population on risk factors and prophylaxis of hypertension

Ewa Krzyżanowska<sup>1</sup>, Kamil Rzepecki<sup>2</sup>, Robert Łuczyk<sup>1</sup>,  
Agnieszka Wawryniuk<sup>1</sup>, Aneta Jędrzejewska<sup>3</sup>, Agnieszka Zwolak<sup>1</sup>

<sup>1</sup>Department of Internal Medicine and Department of Internal Medicine in Nursing, Faculty of Nursing and Health Sciences, Medical University of Lublin

<sup>2</sup>Faculty of Nursing and Health Sciences, Medical University of Lublin, Graduate

<sup>3</sup>Radom Specialist Hospital of T. Titus Chałubiński Postgraduate Center for Nurses and Midwives

### Abstract

**The aim of the study:** The aim of the work was to determine the level of knowledge of the rural population on the subject of prevention and risk factors for hypertension.

**Material and method:** The research covered a group of 200 people living in rural areas. The research was carried out from May to June 2017. A questionnaire of one's own authorship was used in the work, consisting of 19 closed one-choice questions.

**Results:** The research shows that people living in rural areas have high level of knowledge regarding the norms of normal blood pressure. 92% of the respondents correctly indicated the upper values of systolic pressure, and 98% of the respondents were able to determine the correct values of diastolic pressure. The knowledge of the subjects regarding dietary recommendations, physical activity and stimulants such as coffee and cigarettes was at low and medium.

**Conclusions:** The low level of knowledge about risk factors and prophylaxis of hypertension was possessed by 48.5% of respondents, the remaining 51.5% of respondents had knowledge at the secondary level.

**Key words:** hypertension, risk factors, prophylaxis

### **Introduction**

Hypertension, otherwise known as hypertensive disease or hypertension, is a chronic cardiovascular disease that is characterized by permanently or temporarily elevated blood pressure, exceeding the upper limit of values considered normal, observed during at least three measurements. Hypertension continues to be the most important risk factor in regarding the number of premature deaths in the world. High blood pressure values indicate a synergistic relationship to the mortality and incidence of cardiovascular disease (stroke, heart failure, myocardial infarction) and renal failure, in all ethnic and age groups, both in men and in women. [ 1,7]

The problem of hypertension more often affects people with lower education, which is reflected mainly in lower socio-economic classes.[2] In Poland, the prevalence of hypertension is by far the highest among women between 70 and 80 years of age and among men under 80 years of age. In addition, it is worth noting that with age, in people with arterial hypertension, the incidence of chronic kidney disease increases, both in women and men over 80 years of age. [4] Currently, it is estimated that in Poland almost 33% of the population suffers from arterial hypertension, which translates into 9.5 million people aged 18-79 and around 0.95 million people aged over 80 years. [5,6] Our choices regarding lifestyle are very important in the context of preventive measures in the prevention of arterial hypertension. If in a given period of your life you do not struggle with hypertension, introducing a few simple rules into your life can help you reduce the risk of developing this disease in the future. Preventive actions in relation to hypertension are consistent with non-pharmacological treatment of the disease, therefore they should be used not only by healthy people, but above all by people with diagnosed hypertension.[2]

### **The aim of the study**

The aim of the work was to determine the level of knowledge of the rural population on the subject of prevention and risk factors for hypertension.

## Material and method

The research covered a group of 200 people living in rural areas. The research was carried out from May to June 2017. A questionnaire of one's own authorship was used in the work, consisting of 19 closed one-choice questions.

## Characteristics of the studied group

There were 200 people in the study group. Among them were 70.5% women and 29.5% men. The average age of the respondents was 44.12 years (SD = 13.75) and the age varied from 18 to 85 years. In the 18-34 age group there were 23.5% of the respondents. Just over half of people (52.0%) were between 35 and 54 years old. In the age of 55-85, there were 24.5% of people. The basic education had 3.0% of respondents and vocational education was declared by 8.5% of respondents. 38.0% of people had secondary education, and 50.5% had higher education.

## Findings

The group of 92.0% of respondents correctly found that the upper limit of normal blood systolic blood pressure should not exceed 140 mmHg. Almost all subjects (98.0%) also correctly stated that the upper limit of diastolic blood pressure should not exceed 90 mmHg. Fig.1.

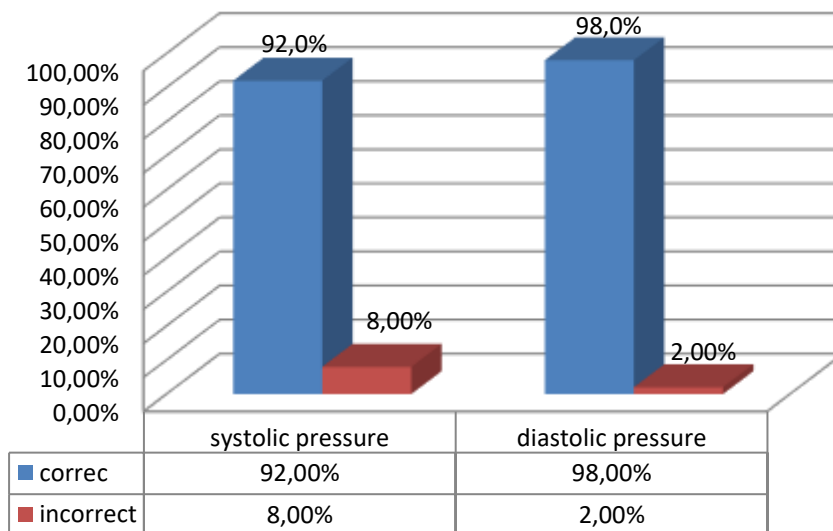


Fig. 1 Correct upper limits of systolic and diastolic pressure

Most of the respondents (76.0%) correctly found that hypertension can be diagnosed if the mean pressure values (obtained from two measurements made during two different visits to the

doctor's office) are equal to or higher than 140/90 mmHg. Few respondents incorrectly claimed that the values of these measurements should exceed 130/90 mmHg (11.0%), 120/80 mmHg (6.5%) or 135/85 mmHg (6.5%) - Fig.2

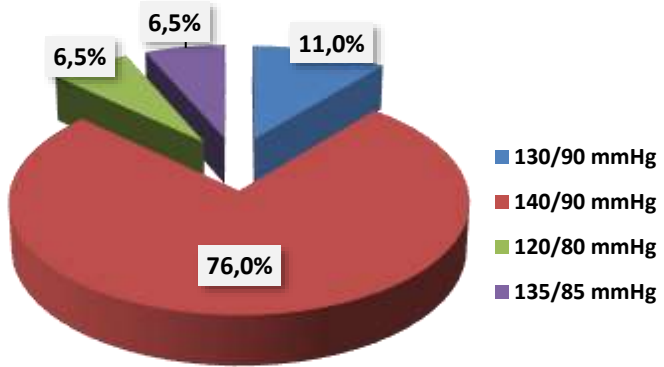


Fig. 2 Pressure values at which you can diagnose hypertension

Only 28.5% of respondents correctly stated that hypertension can be diagnosed during a single visit to a doctor's office when blood pressure values exceed 180/90 mmHg. The group of 16.5% of people decided that blood pressure values in such a situation should exceed 160/90 mmHg. Slightly fewer people (14.5%) stated that blood pressure values in such a situation should exceed 170/90 mmHg or should exceed 150/80 mmHg (12.5%). All of the above mentioned answers were incorrectly indicated by 28.0% of respondents – Fig.3

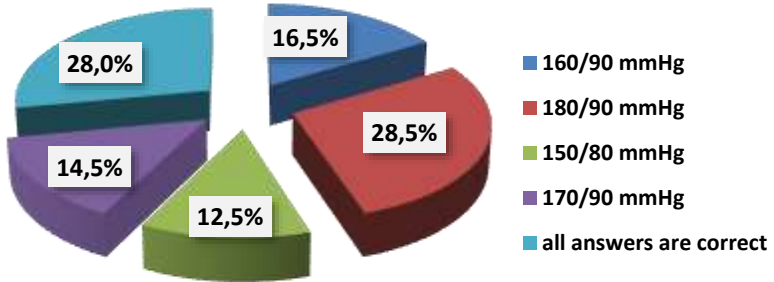


Fig. 3 Values of arterial blood pressure at which hypertension can be diagnosed with one visit to the doctor's office

Among the known complications of untreated hypertension, subjects were most often characterized by stroke (44.5%) or heart disease (38.5%). Few people also mentioned kidney disease (5.5%), atherosclerosis (5.0%) or visual impairment (3.0%). 40.5% of respondents could not point to any possible complication of untreated hypertension. The results did not add up to 100%, because the respondents could indicate more than one answer - Fig.4

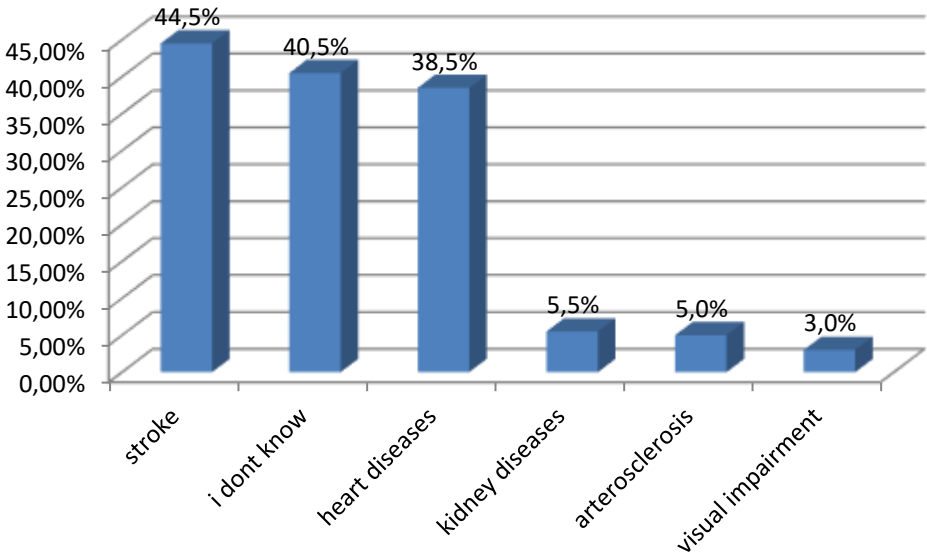


Fig. 4. Knowledge of possible complications of untreated hypertension

Only 19.5% of the respondents correctly stated that abdominal obesity, which is one of the risk factors for hypertension, is when the waist circumference (waist) is above 80-88 cm in women and 94-102 cm in men. Most often, respondents incorrectly claimed that the waist circumference should in this case exceed 100 cm in women or 120 cm in men (42.5%) or should be within 92-96 cm in women and 100-110 cm in men (36.0 %). Few respondents (2.0%) mistakenly stated that abdominal obesity can be said when the waist circumference in women is within 74-78 cm, and in men within 84-90 cm - Fig. 5.

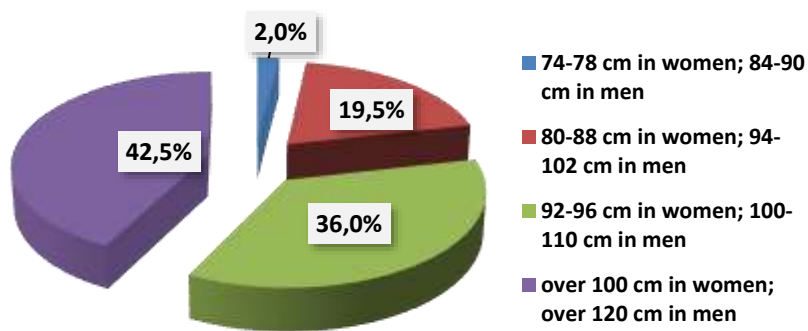


Fig. 5 Waist circumference indicating abdominal obesity

Most of the respondents (82.5%) claimed that drinking coffee has an effect on blood pressure. 17.5% of people were of the opposite opinion - Fig.6.

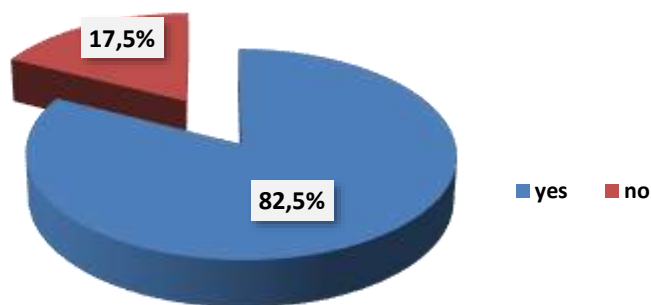


Fig. 6. Opinion of the respondents on the influence of coffee on blood pressure values

Most often the respondents drank 2-3 cups of coffee a day (36.5%) or 1 cup of coffee during the day (31.0%). Above three cups of coffee, 8.0% of people drank daily, and 24.5% of respondents did not drink coffee at all - Fig.7

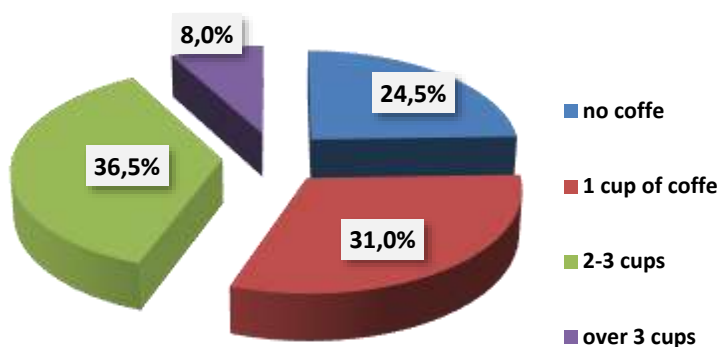


Fig. 7. Number of cups of coffee drunk during the day by the subjects

Over half of the respondents (63.0%) correctly stated that the recommended daily intake of table salt is about 5 grams. Incorrectly, the value of about 7 grams was indicated by 25.5% of people, and a few mistakenly exchanged values of about 10 grams (10.5%) or about 15 grams (1.0%) - Fig.8.

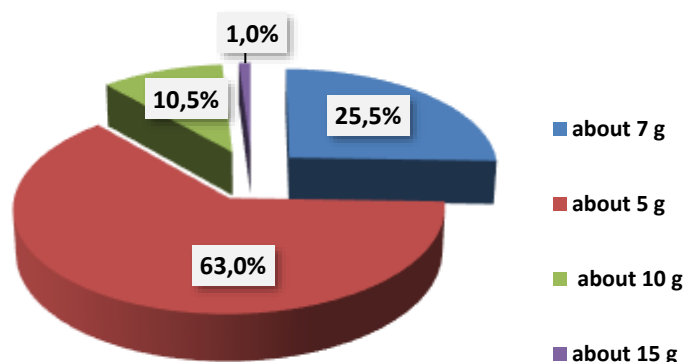


Fig. 8. Knowledge of the recommended amount of table salt in the diet

According to 72.5% of respondents, daily alcohol consumption should not exceed 10-20g alcohol per day in women and 20-30g alcohol per day in men. The answer was correct. Incorrectly, 20-40 grams of alcohol per day in women and 40-60 grams of alcohol per day in men was indicated by 25.0% of people. Few (2.5%) stated that the recommended norm should not exceed 40-60 grams of alcohol per day in women and 70-90 grams of alcohol per day in women - Fig. 9.

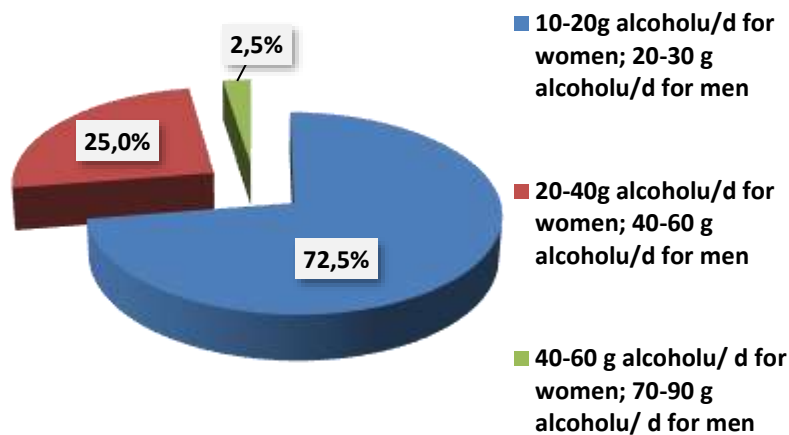


Fig.9. Recommended daily intake of alcohol

According to 68.0% of respondents, the appropriate level of potassium contributes to lowering the blood pressure in people suffering from hypertension. The answer was correct. The group of 25.0% of people mistakenly stated that the element is sodium, and few mistakenly exchanged iron (4.5%) or zinc (2.5%) Fig.10.

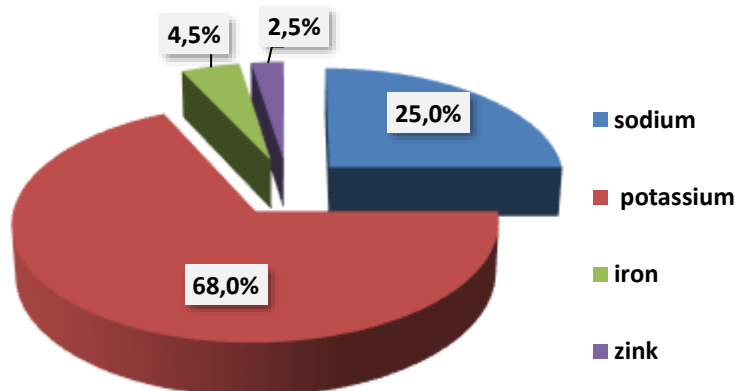


Fig. 10 Knowledge of subjects about the potassium blood pressure

The group of 26.0% of respondents correctly stated that the minimum time that should be spent on moderate physical activity during the day as part of the prevention of hypertension is 30-60 minutes. Most often (47.5%) the respondents mistakenly claimed that this time is 20-30 minutes. In the opinion of 25.5% of people on physical activity for the prevention of



hypertension, a minimum of 20 minutes should be spent, and a few (1.0%) considered that the exercises should last about 90 minutes - Fig. 11

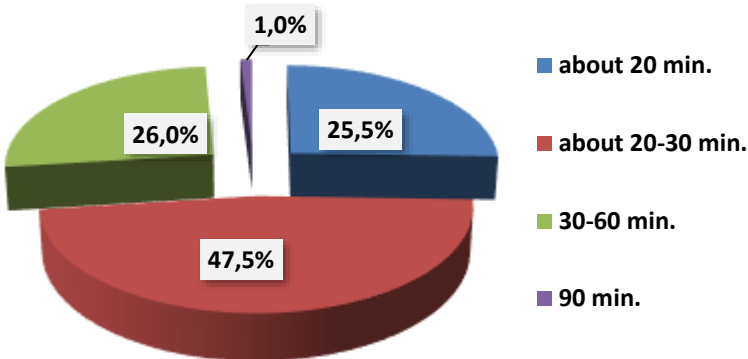


Fig. 11. Knowledge of subjects about the time of recommended physical activity in the prevention of hypertension

Only 16.0% of respondents correctly stated that the recommended frequency of taking moderate physical activity as part of the prevention of hypertension is more than 4 days a week. Most often, respondents wrongly claimed that the recommended frequency of physical activity in this case is 3 times a week (33.0%) or 3-4 times a week (28.0%), less often twice a week (23.0%) - Fig.12

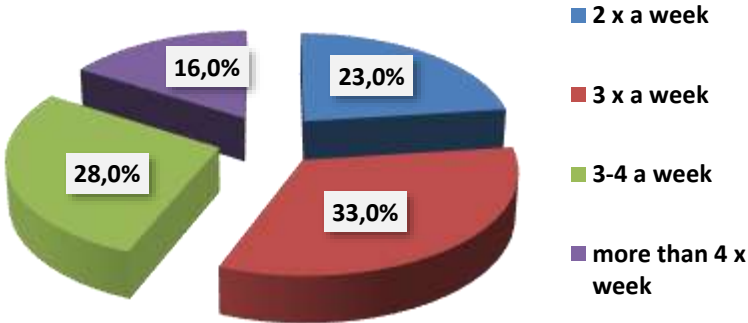


Fig.12. Knowledge of the subjects on the frequency of recommended physical activity in the prevention of hypertension

Most of the respondents (71.5%) correctly stated that people suffering from hypertension and taking antihypertensive drugs should not avoid taking physical activity due to their health condition. This necessity was indicated by 8.0% of people, and they did not know what are the recommendations in this case, 20.5% of respondents - Fig. 13

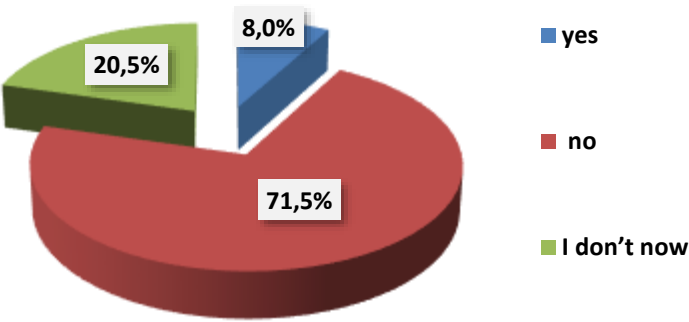


Fig. 13. Opinion of the respondents on physical activity in people diagnosed with hypertension

Most of the respondents (88.5%) correctly stated that smoking is among the risk factors for hypertension. The opposite opinion was wrong, it was 4.5% of people, and the answers were unknown to 7.0% of respondents - Fig.14

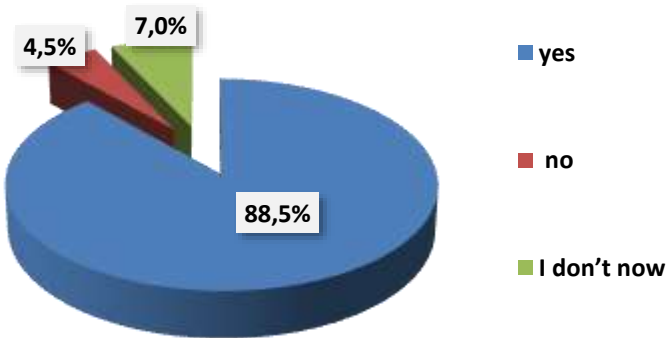


Fig. 14. Knowledge of the subjects on the impact of smoking on blood pressure

Most of the respondents (78.5%) correctly stated that smoking causes an increase in blood pressure. Few have mistakenly stated that smoking does not affect blood pressure (15.0%) or causes a fall in blood pressure (6.5%) - Fig. 15

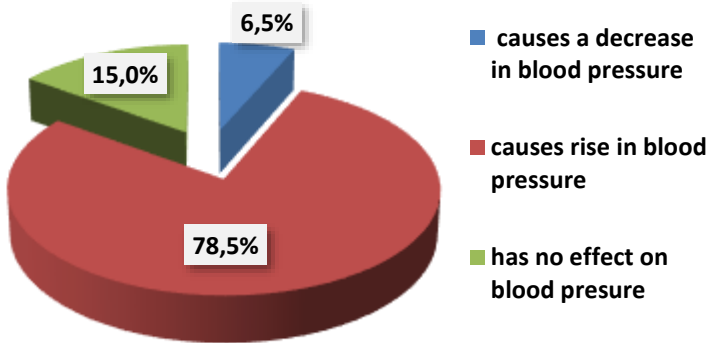


Fig.15. Knowledge about the effects of smoking cigarettes

Most often the respondents cope with stress through physical activity (26.5%) or talking to a close / trusted person (22.5%). To a lesser extent, the subjects coped with stress using other methods (15.0%), snacking (14.0%), reaching for stimulants (12.5%). 9.5% of people were not able to cope with the stress - Fig.16.

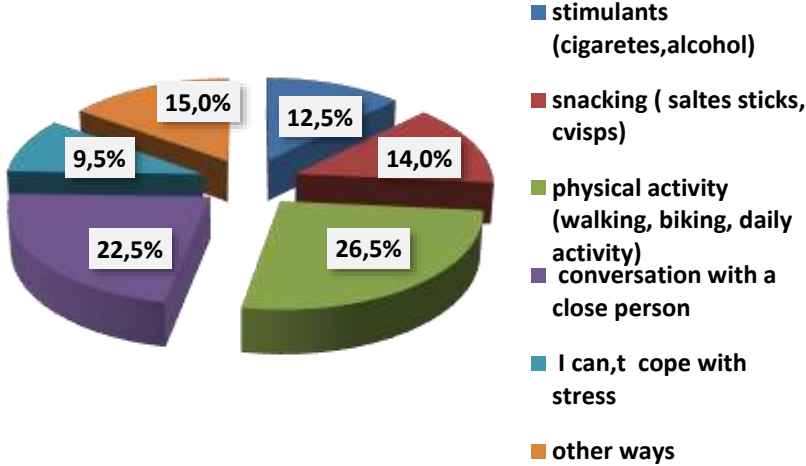


Fig.16. Ways to deal with stress

### The level of knowledge of the subjects on risk factors and prophylaxis of hypertension

Based on 16 questions from the questionnaire (nos. 1-5, 8-15, 17-19), the level of knowledge of the subjects on the risk factors and prophylaxis of hypertension was assessed. Correct answers were assigned 1 point, wrong 0 points. The sum of points was in the range of 0-21 points. The results obtained were divided into three groups:

- low level of knowledge about risk factors and prophylaxis of hypertension (0-10 points, ie below 50% of correct answers),
- average level of knowledge about risk factors and prophylaxis of hypertension (11-15 points, ie less than 75% of correct answers),
- high level of knowledge on risk factors and prophylaxis of hypertension (16-21 points, ie over 75% of correct answers).

Studies have shown that a low level of knowledge about risk factors and prophylaxis of hypertension was presented by 48,5% of respondents. In the case of 51.5% of people, the level of knowledge in this area was medium. It was not found that any of the respondents possessed a high level of knowledge about risk factors and prophylaxis of hypertension. Fig.17

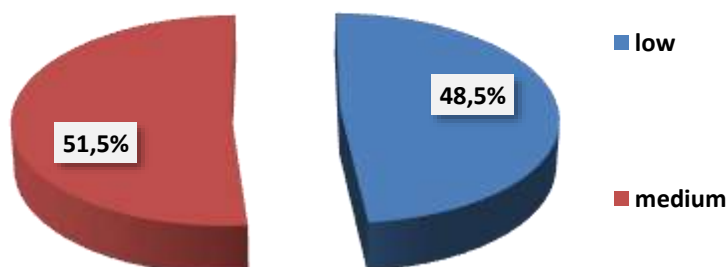


Fig.17. The level of knowledge of the subjects on risk factors and prophylaxis of hypertension

The average level of knowledge on arterial hypertension was slightly more common in people with hypertension (57.9%) than those who did not have hypertension (50.0%). The differences were not statistically significant. Fig.18

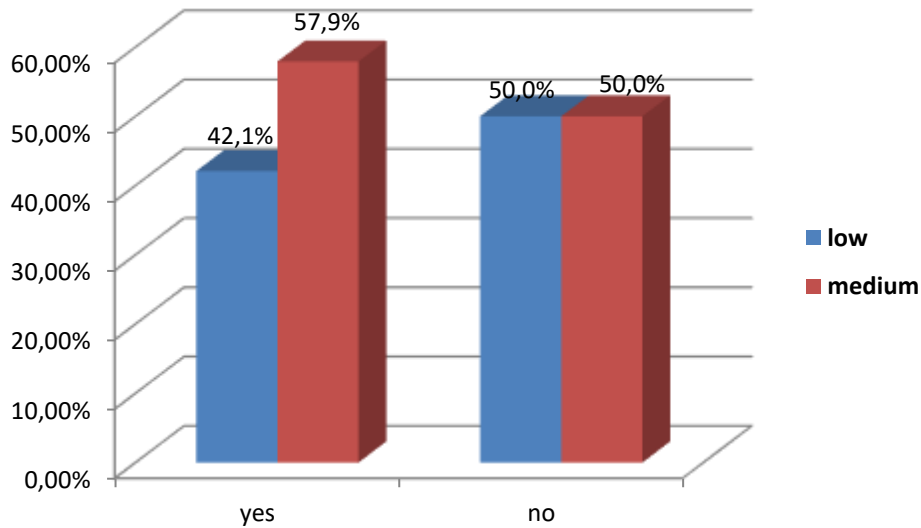


Fig.18. The level of knowledge about risk factors and prophylaxis of hypertension in the group of hypertensive patients and in the healthy group

The occurrence of hypertension in the family did not significantly affect the level of knowledge of the subjects on the risk factors and prophylaxis of hypertension. Fig.19

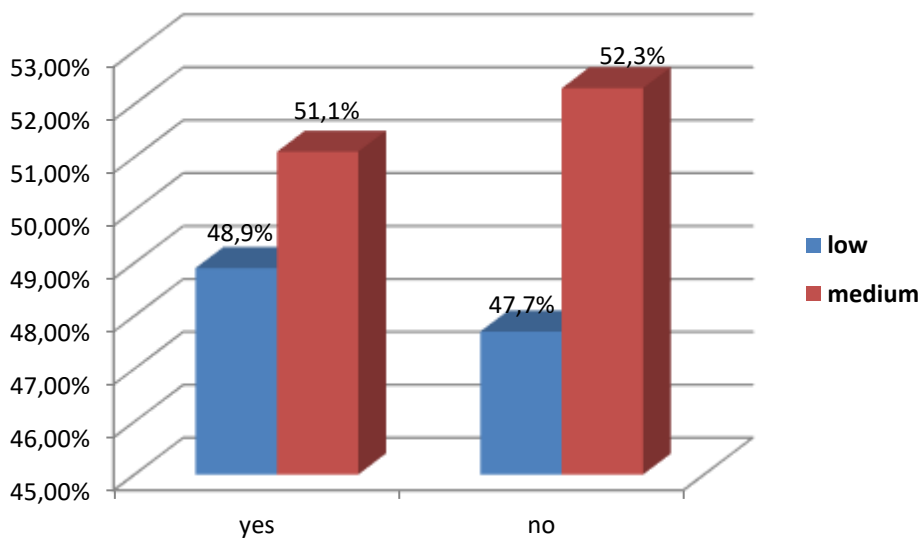


Fig.19. The level of knowledge about risk factors and prophylaxis of hypertension and the occurrence of hypertension in the family

Studies have shown that the average level of knowledge on risk factors and prophylaxis of hypertension was more often found by women (57.4%) than men (37.3%). The differences were significant statistically ( $p = 0.0093$ ) - figure 20

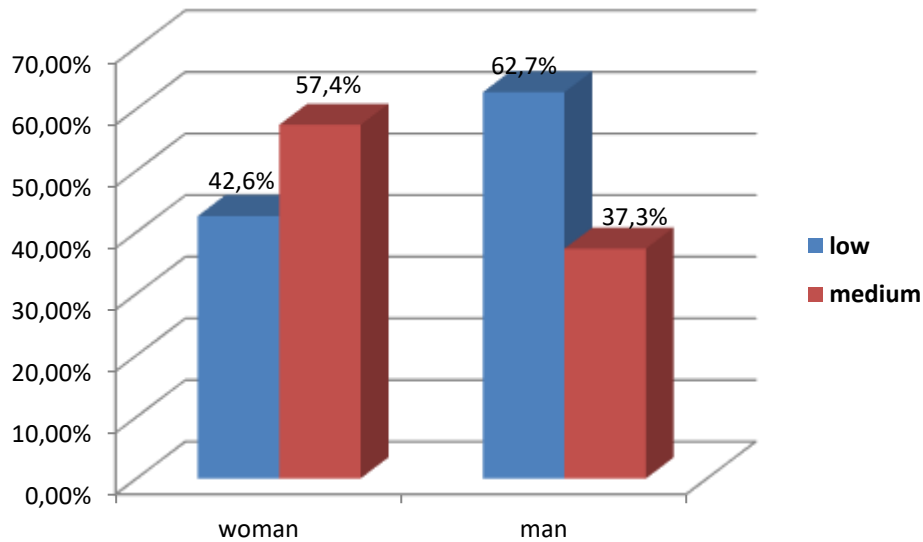


Fig. 20 The level of knowledge about risk factors and prophylaxis of hypertension and the sex of the subjects

Slight statistically significant differences ( $p = 0.0402$ ) indicated that the average level of knowledge on risk factors and prophylaxis of hypertension was more likely for people aged 35-54 (59.6%) and 55-85 years (46.9%) , less often those from the 18-34 age group (38.3%) - Fig.21

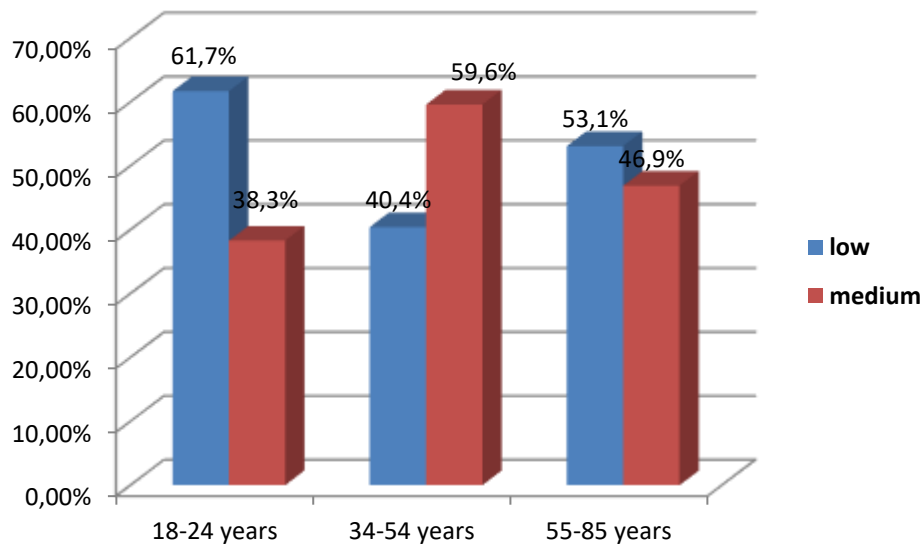


Fig. 21 The level of knowledge about risk factors and prophylaxis of hypertension and the age of the subjects

It was not found that the level of education of the respondents significantly influenced the level of knowledge about risk factors and prophylaxis in hypertension - Fig. 22

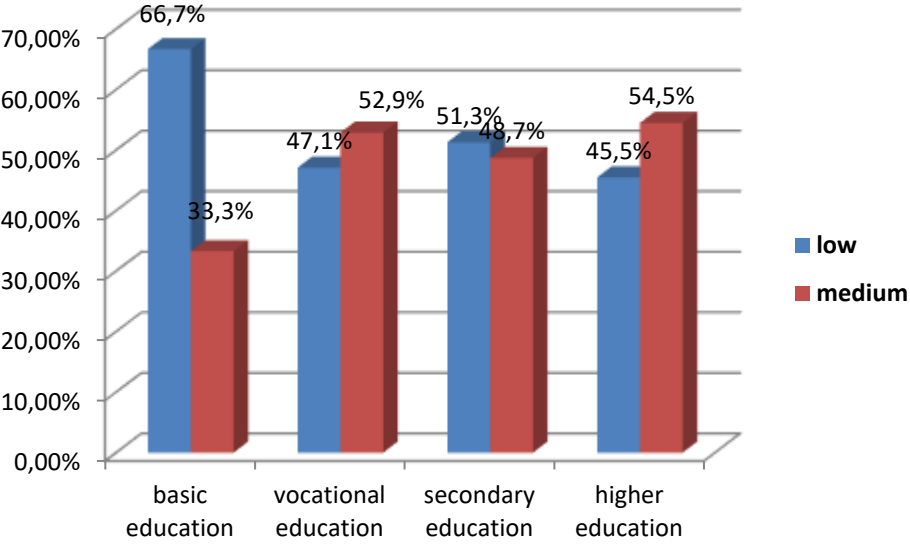


Fig. 22. Level of knowledge about risk factors and prophylaxis of hypertension and education of the subjects

The presence of hypertension in the family did not significantly affect the level of knowledge of the subjects on the risk factors and prophylaxis of hypertension - Fig.23

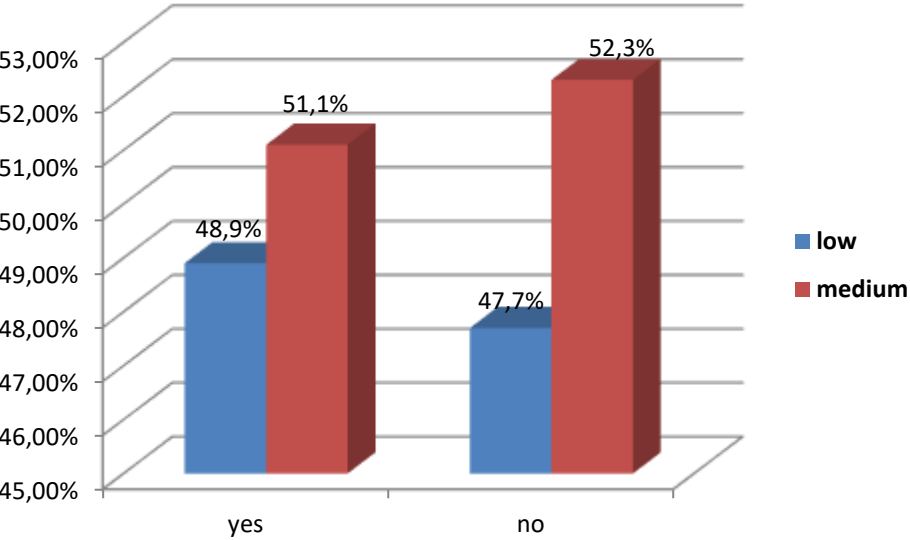


Fig. 23 The level of knowledge about risk factors and prophylaxis of hypertension and the occurrence of hypertension in the family

## Discussion

Hypertension remains the most important risk factor in terms of the number of premature deaths in the world. High blood pressure values indicate a synergistic relationship to the mortality and incidence of cardiovascular disease (stroke, heart failure, myocardial infarction) and renal failure, in all ethnic and age groups, both in men and in women.[ 1,7] The problem of hypertension more often affects people with lower education, which is reflected mainly in lower socio-economic classes. [2] In Poland, the incidence of hypertension is the highest (80-83%) among women between 70 and 80 years of age and among men under 80 (70%). In addition, it is worth noting that with age, in people with arterial hypertension, the incidence of chronic kidney disease increases, both in women and men over 80 years of age. [4] Currently, it is estimated that in Poland almost 33% of the population suffers from hypertension. [6]

Research shows that people living in rural areas have a high level of knowledge regarding the norms of normal blood pressure. 92% of the respondents correctly indicated the upper values of systolic pressure, and 98% of the respondents were able to determine the limit of the correct diastolic pressure. Despite the very good knowledge of the upper blood pressure values by the vast majority of respondents, some problems were found in defining hypertension based on measurements of the pressure value. 76% of respondents correctly indicated the diagnostic values for two different visits to the doctor's office, but only 28.5% showed knowledge about the diagnosis of hypertension during a single visit to the doctor. The knowledge of the subjects on the complications of hypertension was tested, it turned out that people living in rural areas have a diverse range of knowledge in relation to possible complications of hypertension. Particularly uneasy is the fact that as many as 40.5% of the respondents were unable to give at least one possible complication of untreated hypertension. Individuals who were able to name specific complications in the vast majority pointed to cardiovascular disease (38.5%) and stroke (44.5%). Unfortunately, complications related to visual disturbances, kidney diseases or pathological changes induced by atherosclerosis are known only to a few subjects. The study also tested the subjects' knowledge about the impact of coffee and cigarettes on blood pressure. It turned out that as many as 82.5% of respondents claim that drinking coffee influences the value of arterial pressure and 88.5% of respondents believe that smoking cigarettes is a risk factor for hypertension. The amount of salt and alcohol recommended in the prevention of hypertension is known to the majority of respondents..

Particularly worrying is the knowledge deficit of people living in rural areas on the recommended frequency and duration of physical activity as part of the prevention of hypertension. Only 26% of respondents were able to correctly indicate the recommended



minimum time of daily physical activity contributing to the proper functioning of the circulatory system. An important element in the prevention of hypertension are measurements made in accordance with the rules. These rules are known only to 33% of respondents

### **Conclusions**

1. The level of knowledge of the rural population on the prevention and risk factors of hypertension is low.
2. Women present a higher level of knowledge about prevention and risk factors for hypertension than men
3. The greatest knowledge on the prevention of hypertension are those with higher education, the smallest knowledge is given to those with basic education.

## **Bibliography**

1. Bednarski A., Czakon A.: Wiedza żywieniowa i praktyczne stosowanie się pacjentów z nadciśnieniem tętniczym do zaleceń ograniczenia spożycia soli kuchennej [w:] *Nadciśnienie tętnicze* 6/2013, s. 426
2. Crawford M.: *Kardiologia. Współczesne rozpoznawania i leczenie*, PZWL, Warszawa 1997, s. 212-215
3. Durkalec-Michalski K., Suliburska J., Krejpcio Z.: Palenie tytoniu w wybranej grupie pacjentów z pierwotnym nadciśnieniem tętniczym [w:] *Przegląd Lekarski* 2009/66/10, s. 729
4. Prejbisz A., Januszewicz A., Januszewicz W.: Nadciśnienie tętnicze – postępy 2015, *Med. Prakt.* 4/2016, s. 62
5. Runge M., Ohman E.: *Kardiologia Nettera*, tom II, Elsevier Urban & Partner, Wrocław 2009, s. 357-360
6. Suligowska K., Gajewska M.: Niedostateczna wiedza Polaków na temat kryteriów nadciśnienia tętniczego i jego powikłań – wyniki badania NATPOL 2011 [w:] *Nadciśnienie tętnicze* 1/2014, s. 10
7. Tykarski A., Narkiewicz K.: *Zasady postępowania w nadciśnieniu tętniczym* 2015, Via Medica s.1