MICHALIK, Anna, PAJĄK, Celina and HRYĆ, Aleksandra. Knowledge of prevention of lower limb atherosclerosis among patients aged 45-65 in general and vascular surgery wards. Journal of Education, Health and Sport. 2025;81:66873. eISSN 2391-8306.
https://doi.org/10.12775/JEHS.2025.81.66873
https://apcz.umk.pl/JEHS/article/view/66873

The journal has had 40 points in Minister of Science and Higher Education of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of 05.01.2024 No. 32318. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical culture sciences (Field of medical and health sciences); Health Sciences (Field of medical and health sciences).
Punkty Ministerialne 40 punktów. Załącznik do komunikatu Ministra Nauki i Szkolnictwa Wyższego z dnia 05.01.2024 Lp. 32318. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przypisane dyscypliny naukowe: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).
The authors declare that there is no conflict of interests regarding the publication of this paper.
Received: 24.10.2025. Revised: 26.11.2025. Accepted: 26.11.2025. Published: 29.11.2025.

Knowledge of prevention of lower limb atherosclerosis among patients aged 45-65 in general and vascular surgery wards

Anna Michalik
University of Bielsko-Biala, Faculty of Health Sciences
https://orcid.org/0000-0001-5914-3362

Celina Pająk
University of Bielsko-Biala, Faculty of Health Sciences
https://orcid.org/0000-0002-5720-4608

Aleksandra Hryć

Abstract

Introduction: The occurrence of atherosclerosis in the lower limbs increases the risk of arterial disease in other vascular areas. This indicates the importance of the implementation of educational programmes for all, not only for those diagnosed with the condition. Awareness of the disease and its prevention among young and middle-aged people increases the likelihood of their being able to lead a healthy lifestyle, which in turn reduces the risk of atherosclerotic changes.

Aim of the study: The main aim of the study was to conduct research among patients aged 45-65, hospitalised in general and vascular surgery wards, in order to verify their knowledge of the prevention of lower limb atherosclerosis.

Materials and methods: The study was conducted between August and December 2023 among 107 patients aged 45-65 with atherosclerotic diseases who were hospitalised in the general and vascular surgery ward of the one of regional hospital in Podbeskidzie Region. The study was conducted as a survey, using a questionnaire designed by the authors.

Results: Less than half of the respondents (49.5%) required hospitalisation within a year of being diagnosed with Lower Extremity Arterial Disease (LEAD). Most respondents had average knowledge of atherosclerosis (67.3%), while as many as 78.0% of respondents had good or very good knowledge of lower limb atherosclerosis prevention. The main source of knowledge about the disease was specialist doctors (67.3%). As many as 86.0% of respondents

stated that their quality of life had deteriorated after developing atherosclerosis. The most common risk factors in patients were being overweight (77.6%) and obesity (49.5%).
Conclusions: Patients' knowledge about the disease and its prevention is average. Patient education on prevention, especially on proper nutrition, is recommended to reduce the risk of developing atherosclerosis**.**

Key Words
Vascular surgery, atherosclerosis, ischaemic diseases, knowledge, prevention

Introduction

According to preliminary data published by the Polish Central Statistical Office (GUS), more than 180,000 people died from cardiovascular disease in Poland in 2021, accounting for 34.7% of all deaths [1-6]. It is estimated that deaths due to peripheral arteriosclerosis account for 18% of deaths from cardiovascular disease [1]. This is a global problem, with literature sources indicating that this was something ancient societies also struggled with [1, 5-8]. In Poland, as many as 15% of all hospitalisations are due to cardiovascular disease [9-21]. Data on cardiovascular disease indicate that atherosclerosis is one of the most pressing problems facing the modern world. Atherosclerosis is affecting people at a younger and younger age, with conditions that were once typical of the elderly now even being diagnosed in children and adolescents [12, 13]. The social costs of failing to treat peripheral arteriosclerosis are very high. In many cases, amputees become incapacitated, with only 10-15% undergoing prosthetic treatment and returning to physical activity. More often, however, patients require constant care from others. Given these factors, the primary goal in treating patients is to prevent critical limb ischaemia and subsequent amputation. A key element in the treatment of atherosclerosis is to make patients aware that lifestyle changes can radically affect the progression of the disease. Thus, patients themselves bear a significant responsibility for the outcome of treatment [14-20]. Nursing care of the patient also requires careful observation of patients and the ability to recognise complications. Chronic lower limb ischaemia significantly impairs patients' daily activities [21, 22].

Aim of the Study

The main aim of the study was to analyse the knowledge of patients, who were hospitalised in general and vascular surgery wards, about the prevention of atherosclerosis of the lower limb arteries.

Materials and Methods

The study was conducted between August and December 2023 among 107 patients aged 45–65 years with atherosclerotic diseases, who were hospitalised in the general and vascular surgery wards of the one of regional hospital in Podbeskidzie Region. Of these patients, 41

were women (38.3%) and 66 were men (61.7%). The largest number of respondents were aged over 61–65 years (61.7%, n = 66). Almost three-quarters of the respondents lived in towns (68.2%). The largest group were educated to basic level (n = 36, 33.6%), followed by those educated to vocational level (n = 29, 27.1%). Detailed data are presented in Table I.

Table I. Characteristics of the study group (n=107).

Gender	**Total size of the study group (n=107)**	**Percentage of total (100%)**
Female	41	38.3%
Male	66	61.7%
Age	**Total size of the study group (n=107)**	**Percentage of total (100%)**
45-50 lat	4	3.7%
51-55 lat	5	4.7%
55-60 lat	32	29.9%
61-65 lat	66	61.7%
Place of residence	**Total size of the study group (n=107)**	**Percentage of total (100%)**
Rural	34	31.8%
Urban	73	68.2%
Education	**Total size of the study group (n=107)**	**Percentage of total (100%)**
Basic	36	33.66%
Vocational	29	27.1%
Secondary	27	25.2%
Higher	15	14.0%
Type of work	**Total size of the study group (n=107)**	**Percentage of total (100%)**
Manual work (Blue-collar)	40	37.4%
Office work (White-collar)	21	19.6%
Retired	46	43.0%
Marital Status	**Total size of the study group (n=107)**	**Percentage of total (100%)**
Single	17	15.9%
Married	60	56.1%

Widowed	21	19.6%
Divorced	9	8.4%

The study was carried out using a diagnostic survey method; the research tool was a survey questionnaire designed by the author. The examination procedure was in accordance with the principles of the Helsinki Declaration (World Medical Association, 2018). Each respondent was informed about the purpose of the study and its assumptions, particularly that the study is anonymous and that the results obtained from it will be used only for research purposes. Respondents were also assured of the possibility to withdraw from the study at any stage. According to Polish law, this study did not require approval from the bioethics committee. The data obtained were collected in a Microsoft Excel 2021 spreadsheet and analysed using STATISTICA statistical software, version 13.0. The statistical tests chosen to analyse the material were Pearson's R and chi². Before selecting the appropriate test, the normality, variance and scatter of the variable distribution were checked. The significance level assumed to qualify the obtained correlations as valid or not was $\alpha = 0.05$.

Results

At the beginning of the study, respondents were asked to specify the age at which they first experienced symptoms of arteriosclerosis in their lower limbs. In almost half of the cases (47.7% of respondents, 51 people), symptoms were detected in the 56–60 age range. The next most common age group was 61–65 years (34.6%, n = 37), followed by 51–55 years (11.2%, n = 12) and 45–50 years (5.6%, n = 6). One respondent (0.9%) experienced the first signs of the disease under the age of 45. The average age at which the first symptoms appeared was 58 years. When asked to identify the stages of atherosclerosis, the majority of respondents (50.5%, n = 54) selected the correct answer. Respondents were then asked which factors they thought influenced the development of atherosclerotic disease. The majority of respondents indicated poor dietary habits (86.0%), smoking (74.8%), or obesity (72.0%) as influencing factors (Table II).

Table II. Factors influencing the development of atherosclerotic disease according to respondents.

In your opinion, which factors influence the development of atherosclerotic disease	**Number***	**Percentage***
Diabetes	51	47.7%
Lack of sleep	22	20.6%
Obesity	77	72.0%
History of respiratory diseases	8	7.5%
Smoking	80	74.8%
Cardiovascular diseases	50	46.7%
Hypertension	45	42.1%
Degenerative joint diseases	18	16.8%

Kidney diseases	2	1.9%
Athlete's foot	1	0.9%
Poor eating habits	92	86.0%
Other?	0	0%

Explanation: **multiple choice possible, answers do not add up.*

Next, the respondents were asked to suggest how the diet of a person with atherosclerosis should be characterised. Most people selected the answers 'a diet limiting animal fats' (71.0%) and 'a diet limiting meat products' (60.7%). The correct answers were selected by 17 people (15.9%) - a diet low in simple sugars; 39 people (36.4%) - a diet rich in fruit and vegetables; 65 people (60.7%) - a diet limiting meat products and 76 people (71%) - a diet limiting animal fats (Table III).

Table III. According to the respondents, what kind of diet should a person with atherosclerosis follow?

In your opinion, what should the diet of a person with artherosclerosis be characterised by?	**Number***	**Percentage***
A diet low in simple sugars	17	15.9%
A high-protein diet	8	7.5%
A diet rich in fruit and vegetables	39	36.4%
A gluten-free diet	6	5.6%
A diet limiting meat products	65	60.7%
A diet limiting grain products	8	7.5%
A low-energy diet	2	1.9%
A diet limiting animal fats	76	71.0%
I don't know	1	0.9%

Explanation: **multiple choice possible, answers do not add up.*

When asked which tests are used to detect atherosclerotic lesions most people indicated Doppler ultrasound (73.8%) and a lipidogram (59.8%). The correct answers selected were: four people (3.7%) - glycosylated haemoglobin measurement, 79 people (73.8%) - Doppler ultrasound, 14 people (13.1%) - a CT scan and 64 people (59.8%) - a lipidogram. Respondents were then asked which symptoms might indicate the development of atherosclerosis in the arteries of the lower limbs. The majority selected lower limb pain (86.0%), lower limb swelling (60.7%) or a feeling of coldness in the lower limbs (55.1%) as possible symptoms. Respondents

were then asked how lower limb pain caused by atherosclerosis could be alleviated. Most respondents indicated that this could be achieved by using analgesics (68.2%). Based on the survey questions, a scoring system was created to assess respondents' knowledge of the disease. Those who answered fewer than 20% of the questions correctly were classified as having no knowledge of the disease. The largest group of respondents (72 people, 67.3%) were in the medium knowledge group. Eleven people (10.3%) were found to have a good level of knowledge, 20 people (18.7%) had a low level of knowledge, and four people (3.7%) had no knowledge. No respondents were found to have a very high level of knowledge. Respondents were asked about their main source of knowledge regarding atherosclerosis. Most people (72, or 67.3%) declared that they obtained this knowledge from a specialist. Twenty-two people (20.6%) indicated a general practitioner, nine people (8.4%) the internet and television, five people (4.7%) family and friends, and three people (2.8%) a district nurse. Respondents were also asked to provide a subjective assessment of their knowledge of atherosclerosis. Most people (56, or 51.9%) declared a low level of knowledge; 28 people (25.9%) declared a medium level; 19 people (17.6%) indicated that they had no knowledge about the disease; and 4 people (3.7%) declared a high level. As many as 73 people (68.2%) said that they knew someone in their family with atherosclerosis. The most frequently reported first symptom was lower limb pain, indicated by 71 people (66.4%), followed by swelling of the lower limbs, indicated by 41 people (38.3%). Associated diseases were hypertension (83 people, 77.6%), overweight/obesity (53 people, 49.5%), diabetes (38 people, 35.5%), and coronary artery disease (38 people, 35.5%). Only 16 people (15%) reported a history of alcohol abuse and 37 people (34.6%) reported smoking tobacco products. As many as 55 people (51.4%) reported frequent consumption of high-fat meals. When asked about lifestyle changes after being diagnosed with lower extremity arterial disease (LEAD), almost half of the respondents (51 people, 48.0%) stated that their lifestyle had not changed. Only 24 people (22.4%) said they had changed their diet; 16 people (15.0%) had stopped smoking tobacco products; and 21 people (20.0%) said they had started leading an active lifestyle. Of the 107 people surveyed, 73 (68.2%) had progressive disease. With regard to sensations in the lower limbs, 37 respondents (34.6%) reported sensory disturbances, 44 (41.1%) burning sensations, 29 (27.1%) coldness, 57 (53.3%) pain, 13 (12.7%) numbness, 55 (51.4%) swelling, and 29 (27.1%) skin changes. The most common surgical procedure was stent implantation, performed on 32 respondents (29.9%). The next most common procedure was femoropopliteal or aortofemoral bypass grafting, performed on 16 respondents (15.0%). Embolectomy was another frequently performed procedure, recorded in eight respondents (7.5%). The largest group of respondents (38 people, or 35.5%) did not undergo any of the above surgical procedures. The results of the study show that the majority (92 people, or 86.0%) reported a deterioration in their quality of life after receiving a diagnosis of the disease. The final section of the questionnaire included questions aimed at assessing the respondents' knowledge of atherosclerosis prevention. When asked, ‘In your opinion, is a diet low in saturated fats important in preventing lower limb atherosclerosis?’, 84 respondents (78.5%) gave the correct answer, while 23 (21.5%) gave an incorrect answer. When asked, 'In your opinion, can physical activity prevent lower limb atherosclerosis?', 74 respondents (69.2%) gave the correct answer, while the remaining 33 respondents (30.8%) gave incorrect answers. Finally, 100 respondents (93.5%) gave the correct answer to the question, ‘In your opinion, does smoking affect the development of lower limb arterial atherosclerosis?’, while the remaining seven respondents (6.5%) gave an incorrect answer. In response to the question, 'In your opinion, is maintaining a healthy body weight important in the prevention of atherosclerosis of the limbs?', 96 respondents (89.7%) gave the correct answer, while 11

(10.3%) gave an incorrect answer. When asked, 'Is it important for patients with atherosclerosis to have their cholesterol levels checked regularly and their blood pressure monitored?', 99 respondents (92.5%) gave the correct answer, while the remaining 8 (7.5%) gave an incorrect answer. When asked, 'In your opinion, is eating foods rich in fibre beneficial in preventing lower limb atherosclerosis?', 51 respondents (47.7%) gave the correct answer, while 56 (52.3%) gave an incorrect answer. When asked, 'In your opinion, is replacing regular bread with wholemeal bread beneficial in the prevention of lower limb atherosclerosis?' , 62 respondents (57.9%) gave the correct answer, while 45 (42.0%) gave an incorrect answer. An analysis of patients' knowledge of atherosclerosis prevention revealed a low level of knowledge in eight patients (7.5%), while an average level of knowledge was recorded in 15 patients (14.0%). A good level of knowledge was demonstrated by 52 patients, accounting for 48.6% of respondents. The highest level of knowledge was found in 32 patients (29.9%). These results suggest that the majority of patients had at least an average level of knowledge about the prevention of atherosclerosis. An analysis of the subjective assessment of knowledge showed that 42 respondents (39.3%) considered themselves knowledgeable, while 65 (60.7%) admitted to having inadequate knowledge.

Based on Pearson's chi^2 test, no significant correlations were found between the patients' knowledge of proper nutrition and their declared eating habits. Similarly, based on Pearson's chi^2 test ($p>0.05$), no significant relationship was found between the patients' knowledge of proper nutrition and disease progression. Table IV presents the relationship between patients' knowledge of lower limb arterial atherosclerosis prevention and the use of preventive measures in the study group.

Table IV. Relationship between patients' knowledge of lower limb atherosclerosis prevention and the use of preventive measures in the study group.

Patients' knowledge of proper nutrition	Patients' knowledge of lower limb arterial atherosclerosis prevention				Total	Contingency coefficient	p*
	Good	Medium	Low	Very good			
No	35	15	7	4	61		
Yes	17	0	1	28	46	0.53	0.0001
Overall	52	15	8	32	107		

*Pearson's chi^2 test.

Explanation: p*- statistical significance value.

Significant correlations between the analysed variables were demonstrated based on Pearson's chi^2 test ($p<0.05$) concerning patients' knowledge of proper nutrition and their understanding of prevention. However, based on Pearson's chi^2 test ($p>0.05$), no significant correlation was found between the analysed variables - patients' knowledge and the regularity of health checks. Patients' knowledge does not affect how regularly they have health check-ups.

Next, the relationship between patients' knowledge of the disease and their stated source of information was analysed statistically (Table V). It can be concluded that patients have the most knowledge when they obtain it from specialist doctors.

Table V. Relationship between patients' knowledge about the disease and the declared source of this knowledge.

Declared source of knowledge	Patients' level of knowledge about the disease				Total
	High	Medium	Low	Lack of knowledge	
Family/friends	0	1	2	2	5
GP	1	11	9	1	22
Specialist doctor	8	44	15	1	68
District nurses	0	2	1	0	3
Internet/television	0	0	0	0	0
Newspapers/Books	0	0	0	0	0
Other?	0	0	0	0	0
Total	9	58	27	4	98

Next, the relationship between patients' knowledge of the disease and their age was analysed. Based on Pearson's chi^2 test ($p > 0.05$), no significant correlation was found between these analysed variables. Knowledge does not depend on the patients' age. Similarly, the relationship between patients' knowledge of the disease and their place of residence was analysed using Pearson's chi^2 test ($p>0.05$), and again, no significant correlation was found.

Knowledge does not depend on the place of residence of patients. Similarly, the relationship between patients' knowledge of the disease and their level of education was analysed, and again, no significant correlation was found. Knowledge does not depend on patients' education. The relationship between patients' knowledge of disease prevention and their experience of previous surgical procedures; based on Pearson's chi^2 test ($p>0.05$)showed no significant correlation between the analysed variables. Knowledge of prevention is not dependent on previous illness. The relationship between the use of preventive practices and subjective assessment of health deterioration was also investigated using Pearson's chi^2 test ($p>0.05$) and no significant correlation was found.

Discussion

Atherosclerosis is a lifestyle disease and the third leading cause of death in the modern world [23]. It is estimated that around 8.5 million Americans over the age of 40 have peripheral artery disease (PAD) [24]. Gender is one of the many risk factors for atherosclerosis; of the participants surveyed, 38.3% were women. After analysing the collected data, it can be concluded that PAD affects men more often. This correlation is also confirmed by other sources in the literature (e.g. the study by Piotrowska et al. [10]). PAD becomes more prevalent with age, affecting 20% of people over 50, while 40% of patients exhibit no symptoms of the disease [5]. Among the study group, only 17.7% of respondents reported experiencing symptoms before the age of 55; the remainder experienced symptoms at a later age. The study shows that place of residence is not a determining factor in the development of atherosclerosis. The distribution of the study group between urban and rural areas in Poland corresponds to that of the general population. No correlation was found between LEAD incidence and occupational status, education, or marital status. Other research groups described in the literature indicate that place of residence and education influence the prevalence of cardiovascular disease (CVD) prevention [25]. The occurrence of atherosclerosis in family members is a risk factor, as ⅔ of patients with LEAD in the study declared. The time it takes to arrange visits with specialists, coupled with limited access to reimbursed drugs, often means that patients with PAD are diagnosed at a very advanced stage of the disease [3]. Almost half of those surveyed required hospitalisation within a year of experiencing the first symptoms. This may be due to the absence of atherosclerosis symptoms in the early stages of the disease. The study shows that most patients have an average knowledge of LEAD; 22.4% have negligible knowledge and only 10.3% were assessed as having a good level of knowledge. These results suggest that patients with atherosclerosis have inadequate knowledge. Patients are aware of their lack of knowledge about the disease: 69.5% of respondents subjectively assessed their knowledge as poor, and some claimed to have no knowledge at all. General practitioners and specialists are the main sources of knowledge about PAD. The study indicates that patients who obtain knowledge from these sources are the most well-informed. Surprisingly, patients obtain very little knowledge from district nurses, despite their role in patient education. However, among other groups studied, there are those who declare that nurses perform their educational function satisfactorily, with over 80% of respondents stating that the information provided by nursing staff is satisfactory [18]. The good news is that the majority of patients surveyed have a good or very good understanding of the prevention of PAD. Only 7.5% of respondents had limited knowledge of this subject, while 40% of respondents said they based their knowledge on their own subjective feelings. As with knowledge about the disease itself, general practitioners and specialists are

the main source of information. Attempts to verify the level of knowledge regarding risk factors and disease prevention among different populations are frequently undertaken in literature. Numerous studies indicate that the level of medical knowledge among the Polish population is often assessed as low or average. Examples include the knowledge of risk factors and prevention of cervical cancer among women and men, breast cancer prevention, and knowledge of tooth decay in children as well as risk factors for cardiovascular disease (CVD) among working people [12]. The study group also had an average level of knowledge about the risk factors for atherosclerosis. While most of the patients could identify obesity, smoking and poor eating habits as risk factors, many were unaware that diabetes, lack of sleep, CVD, high blood pressure and kidney disease are also risk factors. A scientific study assessing the usefulness of training in CVD prevention among residents of the Małopolska region found that, prior to training, the group had a similar level of knowledge about risk factors, with most people indicating poor diet, lack of physical activity and smoking as risk factors. The other correct factors were not indicated by the majority of people in the study group. Post training, however, a significant improvement in this area was noted with a diagnostic test showing a significant increase in knowledge about coronary heart disease (CHD) risk factors [12]. Therefore, it can be concluded that measures need to be introduced to broaden the public's knowledge of CVD, and that training is an effective way of achieving this. Comparative studies of different patient groups indicate that PAD patients have a lower level of education than patients with ischaemic heart disease. This contributes to their poorer socio-economic status [26]. Patients hospitalised for chronic diseases still lack knowledge about prevention and continuation of the therapeutic process. Therefore, intensive measures are needed to provide planned, monitored education during hospitalisation [27]. However, studies show that the frequency of hospital stays impacts eating habits. Patients who are hospitalised subsequent times tend to eat more healthily, have a more positive attitude towards stimulants, and spend their free time more actively. However, awareness and knowledge among patients in hospital wards does not always translate into pro-health behaviour. They know what they should do, but do not put this knowledge into practice [21]. In the described study, although 37 participants demonstrated knowledge of healthy eating, only nine of them declared that they followed a healthy diet. Bartoszek et al. [25] surveyed a group of adults with an average age of 31 and assessed their knowledge of CVD prevention as high; 62% of respondents gave 80% or more correct answers in the questionnaire. However, an analysis of knowledge conducted by Nowicki et al [7] of cardiovascular risk factors among working people, where the average age was 41, showed that only 30% of respondents had adequate CVD prevention knowledge. The respondents' levels of knowledge were divided into three categories: high, medium, and low. Twenty-five per cent of respondents achieved a high level of specialist knowledge. The authors indicated that this result is unsatisfactory and that a number of health education interventions are needed to improve the current situation. This may be related to the age of the respondents, since young people are much more likely to use social media and websites, which provide a large amount of information, including information on CVD prevention. No correlation was found between age and level of knowledge in the group of respondents aged 45–65. The most common risk factor reported in the study was an unhealthy diet, cited by over half of the respondents. In another group, the most common factor was alcohol consumption [25], which was reported by 15% of respondents. Smoking was also a frequently reported risk factor, at 34.6%. The most common comorbidity among respondents was hypertension, which is classified as a lifestyle disease. Diabetes, being overweight, and coronary heart disease also accounted for a high percentage. The respondents demonstrated a lack of awareness of the link between health behaviours and existing diseases. Most patients do

not associate their lifestyle with their disease. Despite claiming that their quality of life has deteriorated, nearly half of the respondents have not changed any of their habits in order to slow down the progression of the disease. Similar results were observed in the study by Girzelska et al. [18]. However, some respondents declared that they had made changes, such as altering their diet, quitting smoking, and increasing their physical activity. Of the patients surveyed, only 9.3% said they had led an active lifestyle prior to the onset of the disease. Moderate physical activity improves blood test results and reduces the CVD risk. Regular physical activity helps to maintain normal blood cholesterol levels, which increase with age regardless of physical activity [8]. The study found no significant correlation between patients' knowledge of proper nutrition and disease progression. Nevertheless, individuals knowledgeable about atherosclerosis prevention are also aware of the dietary requirements for individuals with CVD. No significant correlation was found between patients' knowledge of prevention and how regularly they had health check-ups with specialists. Nevertheless, only four people stated that they had their health checked less than once a year, which is a satisfactory outcome. No significant correlations were found between patients' knowledge of the disease and their level of education, nor between their level of knowledge and the surgical procedures they had undergone. Similar conclusions were drawn in studies assessing knowledge about healthy lifestyles: regardless of age, education, or professional activity, patients' knowledge about healthy lifestyles was found to be similar [28]. However, the analysis did not reveal any significant differences in disease-related knowledge between patients living in urban and rural settings, despite other studies showing a correlation between place of residence and health behaviours. Rural residents demonstrated lower levels of healthy behaviours than residents of small and large towns [29]. This indicates the need for awareness-raising activities to focus on the importance of CVD prevention and to promote a healthy lifestyle, primarily among residents of smaller towns [12]. Hospital stays provide an opportunity to educate patients and motivate them to adopt a healthy lifestyle [21]. It is a natural phenomenon for sick people to have a reduced sense of coherence compared to healthy people. Many diseases are accompanied by a low level of self-efficacy and meaningfulness. Proximity to family and physical activity can help improve these factors, and knowledge of the given disease plays a key role here. Providing patients with information helps them to feel that they are not alone in difficult situations [30]. The nature of atherosclerotic disease means that systemic measures are necessary for older people. These measures should be interdisciplinary and targeted at all age groups. Introducing healthy habits at an early age reduces the risk of disease in old age. However, unlike younger people, older people do not benefit from electronic tools such as the internet for education due to its unsuitability for the target group [19]. In a study of people aged 45–65, slightly more than 8% cited the internet or television as their main source of knowledge about the disease.

Conclusions

1. Although patients with knowledge of the prevention of lower limb arterial atherosclerosis are aware of what their diet should look like, not all of them put this knowledge into practice.
2. Patients have an average knowledge of how to prevent lower limb atherosclerosis and this does not have an impact on how regularly they monitor their health.
3. Patients have a better understanding of atherosclerosis and its prevention when they obtain information from medical specialists. Regardless of their age, level of education or place of residence, patients' knowledge of the disease is similar.

Educating patients about prevention, particularly proper nutrition, is therefore advisable in order to reduce the risk of developing atherosclerosis.

Author Contribution:
Conceptualization: C.P; A.M.; Methodology: C.P, A.M.; Investigation: A.M., C.P., A.H.; Resources: A.H; Writing-Rough preparation: A.M., C.P., A.H.; Writing- Review and editing: A.M., C.P., A.H.; Supervision: C.P.; Project administration: A.M., C.P., A.H.
All authors have read and agreed with the published version of the manuscript.

Conflicts of Interest:
The authors declare no conflicts of interest with respect to the research, authorship, and/or publication of this article. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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