# THE LEVEL OF KNOWLEDGE OF STUDENTS OF THE MEDICAL UNIVERSITY ABOUT CARDIOVASCULAR DISEASE PREVENTION 

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#### Abstract

Summary: The most effective and the cheapest method of cardiovascular disease prevention is changing lifestyle. Cardiovascular disease is caused by many factors. They include: a diet rich in saturated fat and cholesterol, smoking, a sedentary lifestyle, physical inactivity, overweight and obesity. The aim of the research was to assess the level of knowledge of the students of the Medical University about cardiovascular disease prevention. Material and methods: Research was conducted on 200 students of the Medical University of Lublin, residing in the Student House No. 4 in Lublin. Self-authorship questionnaires were used to assess the level of knowledge of the students of the Medical University about cardiovascular disease prevention. Research results: The students of the Medical University have broad knowledge about the influence of physical activity, diet, cigarettes and alcohol use on cardiovascular disease prevention. 90.5 percent of the respondents know that smoking greatly increases the risk of cardiovascular disease. More than a half of the students are aware that excessive alcohol consumption has a negative impact on the cardiovascular system. 38.67 percent of the respondents recognize moderate alcohol consumption as protective for cardiovascular disease. The remaining 3.13 percent of the students have no knowledge about this issue. Almost half of the respondents ( 45 percent) is aware that psychosocial factors have an impact on the cardiovascular system. 86.5 percent of the students believe that there is a correlation between cardiovascular disease and factors such as: low socioeconomic status, social isolation, stress, negative emotions, depression. The remaining 13.5 percent of the respondents have incomplete knowledge about this issue. Almost the half of the respondents knows that type A personality increases the risk of cardiovascular disease, whereas the remaining 52 percent of the students have incomplete knowledge about this issue.


Keywords: prevention, cardiovascular disease

## Introduction

Cardiovascular disease is one of the main causes of death among men and women. It is the most common reason for hospitalization and chronic inability to work. Cardiovascular disease refers to many serious diseases affecting the cardiovascular system, such as: atherosclerosis, lipid disorders, coronary artery disease, angina pectoris, high blood pressure and heart attack. Cardiovascular disease is caused by many factors including a diet rich in saturated fat and cholesterol, smoking and a sedentary lifestyle which means physical inactivity. (ŁobazGrudzien et al., 2010). Overweight and obesity may also lead to problems with the cardiovascular system. In the higher risk group for developing cardiovascular disease there are people in whose families there were cases of such disease before and people with metabolic syndrome. The likelihood of disease increases with taking birth control pills and psychosocial factors such as low socioeconomic status, stress at work and home, social isolation, lack of social support, negative emotions (Carowicz, Krzemińska 2010, Pająk 2002).

Cardiovascular disease leads to family, social and economic consequences because of the health problems of people in the productive age. Health education is very important in cardiovascular disease protection. Introducing many protection programs raises awareness and decreases the risk of cardiovascular disease (Cybulska et al., 2008).

[^0]Material and methods: Research was conducted on 200 students of the Medical University of Lublin, residing in the Student House No. 4 in Lublin, studying Pharmacy ( 24.5 percent), Medicine (28.5 percent), Nursing (25.5 percent) and Public Health ( 21.5 percent). Research was conducted between 15 and 25 March 2013. Following factors were taken into account while describing the research group: gender, age, faculty and the year of studies. Research was conducted on 163 women ( 81.5 percent) and 37 men ( 18.5 percent). 28 percent of the respondents were between 19 and 20 years of age, 33.5 percent between 21 and 22 , and 38.5 percent between 22 and 30 .

A self-authorship questionnaire containing 31 questions was used to assess the level of knowledge of the students of the Medical University about cardiovascular disease prevention. The research results were statistically analyzed using $\chi^{2}$ Pearson's chi-squared test. Statistical significance of $\mathrm{p}>0.05$ was used, showing the existence of significant differences and relationships. The arithmetic mean was used to show the average level of knowledge. The calculations were made using STATISTICA 10 software (Stat Soft, Poland).

## The research results

The level of knowledge of the students of the Medical University about physical activity in cardiovascular disease prevention is shown in Table 1.

Table 1. The level of knowledge of the students about physical activity in cardiovascular disease prevention taking into account their gender, faculty and the year of studies

| Independent variable |  |  | The level of knowledge |  |  |  | $\chi^{2}$ Test |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | No | Low | Medium | High |  |
|  | Medicine | N | 1 | 0 | 11 | 45 | $\begin{gathered} \chi^{2}=36.63586 \\ p=0.00143 \end{gathered}$ |
|  |  | \% | 1.75\% | 0.00\% | 19.30\% | 78.95\% |  |
|  | Pharmacy | N | 0 | 1 | 16 | 32 |  |
|  |  | \% | 0.00\% | 2.04\% | 32.65\% | 65.31\% |  |
|  | Nursing | N | 0 | 2 | 24 | 25 |  |
|  |  | \% | 0.0 | 4.0\% | 47.0\% | 49.0 |  |
|  | PublicHealth | N | 0 | 0 | 17 | 26 |  |
|  |  | \% | 0.00\% | 0.00\% | 39.53\% | 60.47\% |  |
|  | I | N | 0 | 2 | 19 | 30 | $\begin{gathered} \chi^{2}=21.15653 \\ p=0.13190 \end{gathered}$ |
|  |  | \% | 0.00\% | 3.92\% | 37.25\% | 58.82\% |  |
|  | II | N | 0 | 1 | 15 | 21 |  |
|  |  | \% | 0.00\% | 2.70\% | 40.54\% | 56.76\% |  |
|  | III | N | 0 | 0 | 16 | 13 |  |
|  |  | \% | 0.00\% | 0.00\% | 55.17\% | 44.83\% |  |
|  | IV | N | 1 | 0 | 9 | 32 |  |
|  |  | \% | 2.38\% | 0.00\% | 21.43\% | 76.19\% |  |
|  | V | N | 0 | 0 | 7 | 19 |  |
|  |  | \% | 0.00\% | 0.00\% | 26.92\% | 73.08\% |  |
|  | VI | N | 0 | 0 | 2 | 13 |  |
|  |  | \% | 0.00\% | 0.00\% | 13.33\% | 86.67\% |  |
|  | Female | N | 0 | 2 | 55 | 106 | $\begin{gathered} \chi^{2}=5.006649 \\ \mathrm{p}=0.17131 \end{gathered}$ |
|  |  | \% | 0.00\% | 1.23\% | 33.74\% | 65.03\% |  |
|  | Male | N | 1 | 1 | 13 | 22 |  |
|  |  | \% | 2.70\% | 2.70\% | 35.14\% | 59.46\% |  |
| Total |  | N | 1 | 3 | 68 | 128 |  |
|  |  | \% | 0.50\% | 1.50\% | 34.00\% | 64.00\% |  |

Source: Own study
The conducted statistical analysis revealed a strong correlation between the level of knowledge of the examined students of the Medical University about physical activity in cardiovascular disease prevention and their faculty ( $\mathrm{p}=0.00143$ ). There is no significant statistical correlation between the level of knowledge and their year of studies and gender ( $\mathrm{p}>0.05$ ).

Among the medicine students, 78.95 percent have high level of knowledge, 19.3 percent medium, 0 percent low and 1.75 percent of them have no knowledge about this issue. 65.31 percent of pharmacy students have high level of knowledge, 32.65 percent medium and 2.04 percent low. Nobody from them indicated lack of knowledge.

49 percent of the nursing students have high level of knowledge, 47 percent medium and 4 percent low. Nobody from them indicated lack of knowledge.
60.47 percent of the public health students have high level of knowledge and the remaining 39.53 percent of the respondents have medium level of knowledge.

Among women, 65.03 percent of the respondents have high level of knowledge, 33.74 percent medium and 1.23 percent low. Among men, 59.46 percent have high level of knowledge, 35.14 percent medium and 2.70 percent low.

The results of students' knowledge about physical activity in cardiovascular disease prevention are presented in Figure 1.


Figure 1. The level of knowledge of the students of the Medical University about physical activity in cardiovascular disease prevention
The statistical analysis showed that more than a half of the respondents, 64 percent, have high level of knowledge, 34 percent medium and 1.5 percent of them have low level of knowledge about this issue.

The level of knowledge of the examined students about nutrition, cigarettes and alcohol use in cardiovascular disease prevention is shown in Table 2.

Table 2. The level of knowledge of the examined students about nutrition, cigarettes and alcohol use in cardiovascular disease prevention taking into account their gender, faculty and the year of studies

| Independent variable |  |  | The level of knowledge |  |  |  | $\chi^{2}$ Test |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | No | Low | Medium | High |  |
|  | Medicine | N | 0 | 0 | 16 | 41 | $\begin{gathered} \chi^{2}=24.29299 \\ p=0.00686 \end{gathered}$ |
|  |  | \% | 0.00\% | 0.00\% | 28.07\% | 71.93\% |  |
|  | Pharmacy | N | 0 | 2 | 13 | 34 |  |
|  |  | \% | 0.00\% | 4.08\% | 26.53\% | 69.39\% |  |
|  | Nursing | N | 0 | 2 | 30 | 19 |  |
|  |  | \% | 0.00\% | 4.00\% | 59.00\% | 37.00\% |  |
|  | Public Health | N | 0 | 2 | 13 | 28 |  |
|  |  | \% | 0.00\% | 4.65\% | 30.23\% | 65.12\% |  |
|  | I | N | 0 | 2 | 18 | 31 | $\begin{gathered} \chi^{2}=10.62693 \\ p=0.38731 \end{gathered}$ |
|  |  | \% | 0.00\% | 3.92\% | 35.29\% | 60.78\% |  |
|  | II | N | 0 | 1 | 21 | 15 |  |
|  |  | \% | 0.00\% | 2.70\% | 56.76\% | 40.54\% |  |
|  | III | N | 0 | 1 | 10 | 18 |  |
|  |  | \% | 0.00\% | 3.45\% | 34.48\% | 62.07\% |  |
|  | IV | N | 0 | 1 | 11 | 30 |  |
|  |  | \% | 0.00\% | 2.38\% | 26.19\% | 71.43\% |  |
|  | V | N | 0 | 1 | 8 | 17 |  |
|  |  | \% | 0.00\% | 3.85\% | 30.77\% | 65.38\% |  |
|  | VI | N | 0 | 0 | 4 | 11 |  |
|  |  | \% | 0.00\% | 0.00\% | 26.67\% | 73.33\% |  |
| $\begin{aligned} & \stackrel{\Xi}{\mathbb{E}} \\ & \stackrel{U}{U} \end{aligned}$ | Female | N | 0 | 4 | 64 | 95 | $\begin{gathered} \chi^{2}=4.549596 \\ p=0.10282 \end{gathered}$ |
|  |  | \% | 0.0\% | 2.45\% | 39.26\% | 58.28\% |  |
|  | Male | N | 0 | 2 | 8 | 27 |  |
|  |  | \% | 0.0\% | 5.41\% | 21.62\% | 72.97\% |  |
| Total |  | N | 0 | 6 | 72 | 200 |  |

Source: Own study

The conducted statistical analysis revealed a strong correlation between the level of knowledge of the examined students of the Medical University about nutrition, cigarettes and alcohol use in cardiovascular disease prevention and their faculty ( $p=0.00686$ ). There is no significant statistical correlation between the level of knowledge and their year of studies and gender ( $p>0.05$ ).

Among the medicine students, 71.93 percent have high level of knowledge and the remaining 28 percent medium. 25.53 percent of pharmacy students have high level of knowledge, 26.53 percent medium and 4.08 percent low.

Among the nursing students, 37 percent have high level of knowledge, 59 percent of the respondents medium and 4 percent low. 65.12 percent of the public health students have high level of knowledge, 30.23 percent medium and 4.65 percent low.

Among women, 58.28 percent of the respondents have high level of knowledge, 39.26 percent medium and 2.45 percent low. Among men, 72.97 percent have high level of knowledge, 21.62 percent medium and 5.41 percent low.

The results of the students' of the Medical University knowledge about nutrition, cigarettes and alcohol use in cardiovascular disease prevention are presented in Figure 2.


Figure 2. The level of knowledge of the students of the Medical University about nutrition, cigarettes and alcohol use in cardiovascular disease prevention

The statistical analysis showed that more than half of the respondents, 61 percent, have high level of knowledge about nutrition, cigarettes and alcohol use in cardiovascular disease prevention, 36 percent medium and 3 percent of them have low level of knowledge about this issue.

The level of knowledge of the examined students about normal values of lipid profile in biochemical analysis is shown in Table 3.

Table 3. The level of knowledge of the examined students about normal values of lipid profile in biochemical analysis taking into account their gender, faculty and the year of studies

| Independent variable |  |  | The level of knowledge |  |  |  | $\chi^{2}$ Test |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | No | Low | Medium | High |  |
|  | Medicine | N | 0 | 9 | 27 | 21 | $\begin{gathered} \chi_{\mathrm{p}}^{2}=11.73563 \\ =0.30314 \end{gathered}$ |
|  |  | \% | 0.00\% | 15.79\% | 47.37\% | 36.84\% |  |
|  | Pharmacy | N | 0 | 11 | 24 | 14 |  |
|  |  | \% | 0.00\% | 22.45\% | 48.98\% | 28.57\% |  |
|  | Nursing | N | 0 | 8 | 27 | 16 |  |
|  |  | \% | 0.00\% | 15.68\% | 52.94\% | 31.37\% |  |
|  | Public Health | N | 0 | 9 | 19 | 15 |  |
|  |  | \% | 0.00\% | 20.93\% | 44.19\% | 34.88\% |  |
|  | I | N | 0 | 16 | 20 | 15 | $\begin{gathered} \chi_{\mathrm{p}}^{2}=17.60496 \\ \mathrm{p}=0.06200 \end{gathered}$ |
|  |  | \% | 0.00\% | 31.37\% | 39.22\% | 29.41\% |  |
|  | II | N | 0 | 7 | 20 | 10 |  |
|  |  | \% | 0,.00\% | 18.92\% | 54.05\% | 27.03\% |  |
|  | III | N | 0 | 4 | 16 | 9 |  |
|  |  | \% | 0.00\% | 13.79\% | 55.17\% | 31.03\% |  |
|  | IV | N | 0 | 6 | 22 | 14 |  |
|  |  | \% | 0.00\% | 14.29\% | 52.38\% | 33.33\% |  |


|  | V | N | 0 | 4 | 8 | 14 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% | 0.00\% | 15.38\% | 30.77\% | 53.85\% |  |
|  | VI | N | 0 | 0 | 11 | 4 |  |
|  |  | \% | 0.00\% | 0.00\% | 73.33\% | 26.67\% |  |
| $$ | Female | N | 0 | 28 | 77 | 58 | $\begin{gathered} \chi_{p}^{2}=2.902321 \\ p=0.23430 \end{gathered}$ |
|  |  | \% | 0.0\% | 17.18\% | 47.24\% | 35.58\% |  |
|  | Male | N | 0 | 9 | 20 | 8 |  |
|  | Male | \% | 0.0\% | 24.32\% | 54.05\% | 21.62\% |  |
| Total |  | N | 0 | 6 | 72 | 200 |  |

Source: Own study
The conducted statistical analysis revealed a strong correlation between the level of knowledge of the examined students of the Medical University about normal values of lipid profile in biochemical analysis and their year of studies ( $\mathrm{p}=0.06200$ ). There is no significant statistical correlation between the level of knowledge and their faculty and gender ( $p>0.05$ ).

Among the medicine students, 36.84 percent have high level of knowledge, 47.37 percent medium and 15.79 low. 28.57 percent of pharmacy students have high level of knowledge, 48.98 percent medium and 22.45 percent low. Among the nursing students, 31.37 percent have high level of knowledge, the more than a half, 52.94 percent, medium and 15.68 percent low. 34.88 percent of the public health students have high level of knowledge, 52.94 percent medium and 20.93 percent of the respondents have low level of knowledge.

Among women, 35.58 percent of the respondents have high level of knowledge, 47.24 percent medium and 17.18 percent low. Among men, 21.62 percent of the respondents have high level of knowledge, 54.05 percent medium and 24.32 percent low.

The results of the examined students' knowledge about normal values of lipid profile in biochemical analysis are presented in Figure 3.


Figure 3. The level of knowledge of the students of the Medical University about normal values of lipid profile in biochemical analysis
The statistical analysis showed that 33 percent of the examined students have high level of knowledge about normal values of lipid profile in biochemical analysis, 48.5 percent medium and the remaining 18.5 percent have low level of knowledge about this issue.

The level of knowledge of the examined students about the influence of psychosocial factors on cardiovascular disease is shown in Table 4.

Table 4. The level of knowledge of the students about the influence of psychosocial factors on cardiovascular disease taking into account their gender, faculty and the year of studies

| Independent variable |  |  | The level of knowledge |  |  |  | $\chi^{2}$ Test |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | No | Low | Medium | High |  |
|  | Medicine | N | 1 | 0 | 20 | 36 | $\begin{gathered} \chi^{2}=41.28988 \\ p=0.00029 \end{gathered}$ |
|  |  | \% | 1.75\% | 0.00\% | 35.09\% | 63.16\% |  |
|  | Ph | N | 4 | 0 | 27 | 18 |  |
|  | Pharmacy | \% | 8.16\% | 0.00\% | 55.10\% | 36.73\% |  |
|  | Nursing | N | 14 | 0 | 32 | 15 |  |
|  | Nursing | \% | 27.45\% | 0.0\% | 62.75\% | 29.41 |  |
|  | Public Health | N | 4 | 1 | 17 | 21 |  |
|  | Public Health | \% | 9.30\% | 2.33\% | 39.53\% | 48.84\% |  |


|  | 1 | N | 7 | 0 | 27 | 17 | $\begin{aligned} \chi^{2} & =9.026478 \\ p & =0.52959 \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | \% | 13.73\% | 0.00\% | 52.94\% | 33.33\% |  |
|  | II | N | 6 | 1 | 21 | 9 |  |
|  |  | \% | 16.22\% | 2.70\% | 56.76\% | 24.32\% |  |
|  | III | N | 0 | 0 | 10 | 19 |  |
|  |  | \% | 0.00\% | 0.00\% | 34.48\% | 65.52\% |  |
|  | IV | N | 5 | 0 | 18 | 19 |  |
|  |  | \% | 11.90\% | 0.00\% | 42.86\% | 45.24\% |  |
|  | V | N | 5 | 0 | 5 | 16 |  |
|  |  | \% | 19.23\% | 0.00\% | 19.23\% | 61.54\% |  |
|  | VI | N | 0 | 0 | 5 | 10 |  |
|  |  | \% | 0.00\% | 0.00\% | 33.33\% | 66.67\% |  |
| $\begin{aligned} & \dot{屯} \\ & \stackrel{\rightharpoonup}{\tilde{U}} \end{aligned}$ | Female | N | 20 | 1 | 73 | 69 | $\begin{gathered} \chi^{2}=2.728706 \\ \mathrm{p}=0.43537 \end{gathered}$ |
|  |  | \% | 12.27\% | 0.61\% | 44.79\% | 42.33\% |  |
|  | Male | N | 3 | 0 | 13 | 21 |  |
|  |  | \% | 8.11\% | 0.00\% | 35.14\% | 56.76\% |  |
| Total |  | N | 23 | 1 | 86 | 90 |  |

Source: Own study
The conducted statistical analysis revealed a strong correlation between the level of knowledge of the examined students of the Medical University about the influence of psychosocial factors on cardiovascular disease and their faculty ( $\mathrm{p}=0.00029$ ). There is no significant statistical correlation between the level of knowledge and their year of studies and gender ( $p>0.05$ ).

Among the medicine students, 63.16 percent have high level of knowledge, 35.09 percent medium and 1.75 of the respondents have no knowledge about this issue. 36.73 percent of pharmacy students have high level of knowledge, more than a half, 55.10 percent, medium and 8.16 percent of them have no knowledge about this issue. Among the nursing students, 29.41 percent have high level of knowledge, 62.75 percent medium and 27.45 have no knowledge about this issue. 48.84 percent of the public health students have high level of knowledge, 39.53 percent medium, 2.33 percent low and 9.30 percent of the respondents have no knowledge about this issue.

Among women, 42.33 percent of the respondents have high level of knowledge, 44.79 percent medium, 0.61 percent low and 12.27 percent of the female students have no knowledge about this issue. Among men, more than a half of them, 56.76 percent, have high level of knowledge, 35.14 percent medium, nobody from the respondents has low level of knowledge and 8.11 percent have no knowledge about this issue. The results are presented in Figure 4.


Figure 4. The level of knowledge of the students of the Medical University about the influence of psychosocial factors on cardiovascular disease

The statistical analysis showed that the most of the students, 45 percent, have the high level of knowledge and 44 percent of them have medium level of knowledge. 11 percent of the respondents did not know the correct answer.

The level of knowledge of the examined students about the genetic factors predisposing to cardiovascular disease is shown in Table 5.

Table 5. The level of knowledge of the students about the genetic factors predisposing to cardiovascular disease taking into account their gender, faculty and the year of studies

| Independent variable |  |  | The level of knowledge |  |  |  | $\chi^{2}$ Test |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | No | Low | Medium | High |  |
|  | Medicine | N | 2 | 8 | 22 | 25 | $\begin{aligned} \chi^{2} & =24.52463 \\ p & =0.05670 \end{aligned}$ |
|  |  | \% | 3.51\% | 14.04\% | 38.60\% | 43.86\% |  |
|  | Pharmacy | N | 2 | 5 | 25 | 17 |  |
|  |  | \% | 4.08\% | 10.20\% | 51.02\% | 34.69\% |  |
|  | Nursing | N | 4 | 13 | 27 | 7 |  |
|  |  | \% | 7.84\% | 25.50\% | 52.94\% | 13.75\% |  |
|  | Public Health | N | 1 | 6 | 15 | 21 |  |
|  |  | \% | 2.32\% | 13.95\% | 34.88\% | 48.85\% |  |
|  | I | N | 3 | 9 | 22 | 17 | $\begin{gathered} \chi^{2}=13.39247 \\ p=0.57201 \end{gathered}$ |
|  |  | \% | 5.88\% | 17.65\% | 43.14\% | 33.33\% |  |
|  | II | N | 3 | 10 | 17 | 7 |  |
|  |  | \% | 8.10\% | 27.00\% | 46.00\% | 18.90\% |  |
|  | III | N | 1 | 4 | 13 | 11 |  |
|  |  | \% | 3.45\% | 13.79\% | 44.83\% | 37.93\% |  |
|  | IV | N | 1 | 6 | 20 | 15 |  |
|  |  | \% | 2.38\% | 14.29\% | 47.62\% | 35.71\% |  |
|  | V | N | 1 | 3 | 11 | 11 |  |
|  |  | \% | 3.85\% | 11.54\% | 42.31\% | 42.31\% |  |
|  | VI | N | 0 | 0 | 6 | 9 |  |
|  |  | \% | 0.00\% | 0.00\% | 40.00\% | 60.00\% |  |
| $\begin{aligned} & \text { む } \\ & \frac{\text { U }}{0} \end{aligned}$ | Female | N | 7 | 27 | 76 | 52 | $\begin{gathered} \chi^{2}=4.021043 \\ \mathrm{p}=0.25920 \end{gathered}$ |
|  |  | \% | 4.32\% | 16.67\% | 46.91\% | 32.10\% |  |
|  | Male | N | 2 | 4 | 13 | 18 |  |
|  |  | \% | 5.41\% | 10.81\% | 35.14\% | 48.65\% |  |
| Total |  | N | 9 | 32 | 89 | 70 | - |

Source: Own elaboration

The conducted statistical analysis revealed a strong correlation between the level of knowledge of the examined students of the Medical University about the genetic factors predisposing to cardiovascular disease and their faculty ( $p=0.05670$ ). There is no significant statistical correlation between the level of knowledge and their year of studies and gender ( $p>0.05$ ).

Among the medicine students, 43.86 percent have high level of knowledge, 38.6 percent medium, 14.04 percent low and 3.51 of the respondents have no knowledge about this issue. 34.69 percent of pharmacy students have high level of knowledge, just more than a half, 51.02 percent, medium and 10.02 percent low. Among the nursing students, 13.75 percent have high level of knowledge, 52.94 percent medium and 25.5 low. Less than a half of the public health students, 48.85 percent, have high level of knowledge, 34.88 percent medium and 13.95 percent low.

Among women, 32.10 percent of the respondents have high level of knowledge, 46.91 percent medium and 16.67 percent low. Among men, almost a half of them have high level of kno wledge, 35.14 percent medium and 10.81 percent low.

The results of the examined students' knowledge about the genetic factors predisposing to cardiovascular disease are presented in Figure 5.


Figure 5. The level of knowledge of the students of the Medical University about the genetic factors predisposing to cardiovascular disease

The statistical analysis showed that the most of the students, 45 percent, have the high level of knowledge. Less of the respondents, 35 percent, have medium level of knowledge. 16 percent of them have low level of knowledge.

The correlation between the level of knowledge of the students about cardiovascular disease prevention and their faculty is shown in Table 6.

Table 6. The level of knowledge of the students about cardiovascular disease prevention taking into account their faculty

| Faculty |  | The level of knowledge |  |  |  | Total in line |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | No | Low | Medium | High |  |
| Pharmacy | N | 0 | 0 | 29 | 20 | 49 |
|  | \% | 0.0 | 0.0 | 59.18 | 40.82 |  |
| Medicine | N | 0 | 1 | 17 | 39 | 57 |
|  | \% | 0.0 | 1.75 | 29.82 | 68.42 |  |
| Nursing | N | 0 | 0 | 32 | 19 | 51 |
|  | \% | 0.0 | 0.0 | 62.75 | 37.25 |  |
| Public health | N | 0 | 0 | 21 | 22 | 43 |
|  | \% | 0.0 | 0.0 | 48.84 | 51.16 |  |
| Total | N | 0 | 1 | 99 | 100 | 200 |
| $\chi^{2=17.28576} \quad \mathrm{p}=0.06828$ |  |  |  |  |  |  |

Source: Own study
The statistical analysis revealed no significant correlation between the level of knowledge of the examined students and their faculty ( $p=0.06828$ ).

The research showed that among 68.42 percent of the respondents having the high level of knowledge, medicine and public health students are in majority ( 51.16 percent). Slightly less pharmacy students ( 40.82 percent) have the high level of knowledge.

The correlation between the level of knowledge of the students about cardiovascular disease prevention and their gender is shown in Table 7.

Table 7. The level of knowledge of students about cardiovascular disease prevention taking into account their gender

| Gender | The level of knowledge |  |  |  | Total in line |  |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: |
|  | No | Low | Medium | High |  |  |
| Female | N | 0 | 0 | 82 | 81 | 163 |
|  | $\%$ | $0.0 \%$ | $0.00 \%$ | $50.31 \%$ | $49.69 \%$ |  |
| Male | N | $0.0 \%$ | 1 | 17 | 19 | 37 |
|  | $\%$ | $0.0 \%$ | $2.70 \%$ | $45.95 \%$ | $51.35 \%$ |  |
| Total | N | 0 | 1 | 99 | 100 | 200 |
| $\chi^{2}=4.537834$ |  |  |  |  |  |  |
|  | $\mathrm{p}=0.10342$ |  |  |  |  |  |

Source: Own study

The statistical analysis revealed no significant correlation between the level of knowledge of the examined students about cardiovascular disease prevention and their gender ( $\mathrm{p}=0.10342$ ).


Figure 6. The level of knowledge of the students about cardiovascular disease prevention taking into account their gender
The research showed that 2.7 percent of men have low level of knowledge, whereas no woman has low level of knowledge. Medium level of knowledge was found among 50.31 percent of women and 49.95 percent of men. The examined men have more knowledge ( 51.35 percent) than the examined women ( 49.69 percent).

## Discussion

Cardiovascular disease is one of the major causes of early death in Poland. There are many etiological factors of cardiovascular disease, including gender, age, genetic factors and a lifestyle. Cardiovascular disease prevention consists of promoting the healthy lifestyle and changing unhealthy behaviors such as smoking, bad nutrition, physical inactivity and life under constant stress (Antczak et al., 2000). The knowledge is necessary to understand health-seeking behaviors. That is why health education is needed. The knowledge and patterns of healthy behaviors are established during preparation for medical professions.

The own research showed that 61 percent of the students of the Medical University have high level of knowledge about the influence of physical activity and proper body weight on cardiovascular disease prevention. The similar research results were obtained by Markiewicz-Górka et al., 2012. They showed that almost every student of Wroclaw Medical University ( 98.94 percent) knows that physical activity is significant in cardiovascular disease prevention. Conducted own research allows to state that the examined students have high level of knowledge about the influence of a diet, smoking and alcohol use in cardiovascular disease prevention. 90.5 percent of the respondents know that smoking significantly increases the risk of cardiovascular disease. In the research conducted by Pietrzak (2001), 82.5 percent of the graduates of medical faculties recognized smoking as a cause of cardiovascular disease.

The own research showed that 94.5 percent of the students are aware that a diet influences the cardiovascular system. The majority of them, 98.5 percent, know recommendations about including vegetables, fruit and fish in a diet used in cardiovascular disease prevention.

83 percent of the examined students are aware of the negative influence of saturated animal fat on the cardiovascular system. Pietrzak (2001) showed in the research conducted among students of the Faculty of Medicine on the Medical University in Bydgoszcz that 77 percent of the respondents know that saturated animal fat should be restricted in a diet preventing cardiovascular disease. 54.3 percent of the examined students are aware of the importance of eating fruit and vegetable, and 78 percent of them know that eating products rich in cholesterol should be limited. Basing on the research conducted by Ślusarska et. al. (2012), it can be said that 83.65 percent of the examined medicine students know about the correlation between the low consumption of saturated fatty acids and a diet recommended in cardiovascular disease prevention. More than a half of the respondents, 55.77 percent, considered the high consumption of polyunsaturated fatty acids as an important feature of a diet preventing cardiovascular disease.

The research conducted by Poręba et al. (2008) showed that 41.8 percent of students of Wrocław universities know that unsaturated fatty acids have a positive influence on the cardiovascular system. 84.2 percent of the respondents considered excessive common salt use as inadvisable in a diet preventing cardiovascular disease.

Taking into account the knowledge about normal values of lipid profile in biochemical analysis, the research showed that almost the half of the students ( 48.5 percent) have medium level of knowledge. 83 percent of the respondents know the normal cholesterol level in blood. The vast majority of the examined students ( 92 percent) are aware that HDL cholesterol has a positive influence on health. The research conducted by Ślusarska et al. (2012) showed that 89.42 percent of the respondents know the normal cholesterol level in blood and 67.31 percent of them are aware that HDL cholesterol has a positive influence on health. However, the research conducted by Poręba R. et al. (2008) showed that only 21.7 percent of the respondents know that HDL cholesterol has a positive influence on health. Pietrzak (2001) showed in his research that 86.4 percent of the students considered hypercholesterolemia as one of the main causes of cardiovascular disease.

The own research showed that more than a half of the respondents know disease entities which increase the risk of cardiovascular disease. It corresponds with the research conducted by Pietrzak (2001) who stated that 81.3 percent of the respondents considered diabetes as a factor increasing the risk of cardiovascular disease.

The own research revealed that 45 percent of the students are aware that psychosocial factors have the influence on the cardiovascular system. 86.5 percent of the respondents know that there is the correlation between blood circulation pathologies and factors such as: low socioeconomic status, social isolation, stress, negative emotions, depression.

The own research revealed no correlation between the level of knowledge of the examined students about cardiovascular disease prevention and their faculty and gender. However, there was a correlation revealed between the knowledge of the respondents and their year of studies. The highest level of knowledge was shared by $6^{\text {th }}$ year students (80 percent).

## Conclusions

1. The students of the Medical University have high level of knowledge about cardiovascular disease prevention. The highest level of knowledge is shared by the medicine students, the lowest by the nursing students. The pharmacy and public health students have similar level of knowledge.
2. The examined men had high level of knowledge about cardiovascular disease prevention more often than women. However, the differences in the assessment were not statistically significant.
3. The lowest level of knowledge concerned the influence of lipid metabolism on cardiovascular disease, the highest - the significance of physical activity in cardiovascular disease prevention.
4. The level of knowledge about cardiovascular disease prevention depends on the year of studies. The $5^{\text {th }}$ and $6^{\text {th }}$ year students have the highest level of knowledge, while the $1^{\text {st }}$ and $2^{\text {nd }}$ year students have the lowest.

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