Socio-economic factors of patients of a military sanatorium in Krynica Zdrój and selected elements of their lifestyle

Czynniki socjoekonomiczne pacjentów sanatorium wojskowego w Krynicy Zdroju a wybrane elementy ich stylu życia

Katarzyna Zwolińska-Mirek¹*, Janusz Mirek¹,², Elżbieta Cygnar¹, Jolanta Proszowska³

¹ Państwowa Wyższa Szkoła Zawodowa w Nowym Sączu, Instytut Kultury Fizycznej, Poland
State University of Applied Sciences in Nowy Sącz, Institute of Physical Education, Poland
² Sanatorium MSWiA w Krynicy-Zdroju, Ministry of Interior and Administration Sanatorium in Krynica-Zdrój, Poland
³ Zespół Przychodni Specjalistycznych Tarnów, Specialist Outpatient Clinics in Tarnów, Poland

Summary
Introduction: One of the crucial factors influencing the lifestyle and health-related behaviors undertaken by people is their social and economic situation. Apart from material status, the level of education plays a significant role. Social and economic factors are major determinants influencing population health. The socio-economic situation may significantly affect the health-related behaviors undertaken in the group in question. The paper attempts to assess the impact of the socio-economic background of patients with mobility dysfunctions and comorbidities, undergoing the spa and rehabilitation treatment on their health-related behaviors. The study was supposed to answer the question whether undertaking health-related behaviors is dependent on the socio-economic factors of the patients in the study. The study constitutes only one of the elements of broader analysis of health-related behaviors covering patients undergoing sanatorium treatment.

Material and methods: The group included in the study consisted of 450 patients (300 women and 150 men) undergoing spa and rehabilitation treatment at the 20 Military Spa and Rehabilitation Hospital in Krynica-Zdrój. Patients were referred to sanatorium treatment mainly due to mobility dysfunctions but also due to comorbidities. Diagnostic survey was used as a research method and the author’s own questionnaire specifically designed for its purpose was applied. The questions concerned physical activity, nutrition, use of psychoactive substances and preventive examinations. The analysis of the patients’ medical documentation provided the authors with objective information about the results of laboratory tests, current health problems and ailments as well as the course of the applied treatment.

Research and conclusions: The education level together with economic status of the respondents have a statistically significant impact on the form of selected physical activity in the group under study. Patients with average income went for walks more often while remedial gymnastics was often practiced by patients with monthly net income above PLN 1,500. No statistically significant correlations between the education level and economic status of the patients and the regularity of meals as well as the number of hours devoted to sleep was stated. The correlation between the frequency of stays in sanatorium and the place of residence, education level, type of work performed as well as wealth level was not found.

Keywords: patients, socio-economic factors, spa and rehabilitation treatment

Introduction

Enjoying good health, understood as a state of complete physical, mental and social well-being and not merely absence of a disease or infirmity (disability), is the most important determinant of high quality life. There is a number of available measures and possibilities to maintain a high physical activity level until old age. Applying simple and clear principles of a healthy lifestyle and specific rules on disease prevention favors the maintenance of biological health resources. The currently observed trend in incidence of certain non-communicable diseases as well as deviations from health standard and deaths in our country, is an outcome of changes in the lifestyle such as exposure to tobacco

* Adres do korespondencji/Address for correspondence: k.z.mirek@interia.pl
smoke, improper diet and sedentary lifestyle. The burden of lifestyle-related diseases have become one of the most important problems of modern medicine as they have become so common and most severely affect both general health and life condition [1–18].

Various anti-health behaviors can be found among both main causes and sub-causes of such unsatisfactory health condition. One of the most important factors affecting the lifestyle and health-related behaviors of individuals is their social and economic background. Apart from material status, a significant role is also played by the level of education, which has become a determinant of health information and knowledge. Social and economic factors are essential determinants of population health [19–27].

The paper attempts to assess the impact of the socio-economic background of patients with mobility dysfunctions and comorbidities, undergoing the spa and rehabilitation treatment at the 20 Military Spa and Rehabilitation Hospital in Krynica-Zdrój on their health-related behaviors. The study was supposed to answer the question whether undertaking health-related behaviors is dependent on the socio-economic factors of the patients in the study.

The study constitutes only one of the elements of broader analysis of health-related behaviors covering patients undergoing sanatorium treatment. The approval of the Bioethics Committee was obtained.

Material and methods

The group in the study consisted of 450 patients (300 women and 150 men) undergoing spa and rehabilitation treatment at the 20 Military Spa and Rehabilitation Hospital in Krynica-Zdrój. Patients were referred to sanatorium treatment mainly due to mobility dysfunctions but also due to comorbidities such as metabolic disorders. The inclusion criteria were as follows: patients were informed and voluntary consent obtained for the medical test to be performed, patients’ age 45–70, and occurrence of mobility dysfunctions and comorbidities without pathology of digestive system.

Diagnostic survey was used as a study method and the author’s own questionnaire specifically designed for its purpose was applied. The questions concerned mainly aspects related to the group under study such as lifestyle as physical activity, nutrition, use of psychoactive substances and preventive examinations.

The analysis of the patients’ medical documentation provided the authors with objective information about the results of laboratory tests, current health problems and ailments as well as the course of the applied treatment. The study procedure included the following stages:

Selection stage – sampling – selecting participants for the study. The selection stage involved obtaining consent to participate in the study. After obtaining the consent, the purpose of the study and the manner of conducting it were presented.

Actual survey stage – the respondents provided answers to the questions in the questionnaire. Medical records were also analyzed.

Statistical study of the survey results. The analysis of the survey results was conducted by the statistical package STATISTICA for Windows 9.0. Distributions of answers to survey questions were analyzed using the dependency test chi2 and Fisher’s test. The probability value p < 0.05 was considered as statistically significant.

Results

The group in the study consisted of patients at the age between 45 and 70 (average age was 58.7), who were undergoing a health resort treatment at the Military Sanatorium in Krynica-Zdrój. The patient average body weight was 76.5 kg (BMI 27.5 kg/m²). The average values of blood pressure and basic blood parameters are presented in the Table 1 below.

Nearly half of the respondents had improper values of blood pressure, over 40% had elevated levels of total cholesterol and LDL fraction, one-fifth of the patients had elevated level of triglycerides, and over 30% of them suffered from hyperglycemia (Tab. 2).

Over half of the patients were inhabitants of big cities (more than 200,000 inhabitants) with secondary level (43.1%) or higher education (42.2%). Only 16.2% of the respondents live permanently in the country, and less than 3% of them have primary level education. The majority of patients (70%) were married. Slightly more than a half of them were pensioners with monthly net income for one family member above PLN 1 500. Respondents were referred to sanatorium treatment mainly due to mobility dysfunctions including, above all, degenerative overload lesions in the spine and joints; rheumatoid arthritis have been diagnosed in 3.1% of the patients, and two patients suffered from multiple sclerosis. Also numerous comorbidities have been observed in the group under study such as hypertension (34.4%), diabetes (7.1%), osteoporosis (3.5%), coronary artery disease (3.1%), respiratory diseases (2.9%), or lower limb varicose vein (2.7%). Nearly ⅓ of the patients underwent a sanatorium treatment for the first time, half of them declared they stay in the sanatoriums regularly. There was about 8% more men than women in the group under study. The majority of patients underwent regular health checks in order to monitor their state of health. The majority of the female patients declared having performed preventive gynecological examinations – over 80%, and nearly 50% of male patients went through specialized urological examinations. For instance, the PSA blood test within two years prior their sanatorium treatment. The vast majority of the patients, both women and men, performed basic laboratory tests such as, for instance lipoprotein profile or blood glucose level...
during the previous two years. Statistically significant relationships between the frequency of undergoing spa treatment and the performance of these tests were demonstrated. Nearly 80% of women and 82% of men have had the preventive ECG test performed in last 2 years, while chest x-ray has been performed on 70.5% female and 75% male patients of the military sanatorium. There were no statistically significant relationships between sex and the above tests.

No statistically significant correlations between the level of education, economic status and the selected aspects of lifestyle (among others, exercising or eating meals at regular intervals) were observed in the study. Patients with primary and higher education declared they had regular mealtimes, but also far more frequently took up physical activity than ceased it. Patients with all types of income – from the lowest to the highest – were more likely to have regular mealtimes and were engaged in everyday physical activity.

Statistically highly significant dependence (p=0.0004) between the forms of undertaken physical activity and monthly net income per one family member was observed.

Statistically significant dependence (p=0.0202) between the selected form of physical activity by respondents and the level of their education was stated. Patients with average income went for walks more often while remedial gymnastics was often practiced by patients with monthly net income above PLN 1,500. Team sports were never chosen as a physical activity by patients with the lowest monthly income but also by those with the highest income.

Respondents with primary and vocational education never did strength exercises while those with higher education never played team sports. Walking as a form of preferred everyday physical activity was declared by patients with the education level from primary to higher.

The analysis of the Spearman rank correlation coefficient did not show any significant dependencies between the level of patients’ education as well as their wealth level and the number of hours of sleep per day (Tab. 3).

The study did not show a statistically significant correlation between the frequency of stays in the sanatorium and the place of residence, education level, type of work performed and wealth level.

City residents were more likely to undergo a sanatorium treatment on a regular basis rather than occasionally. The relation is definitely stronger in case of respondents living in the countryside. Over 60% of patients living in rural areas participated

### Table 1.

The characteristics of the group under study (a)

<table>
<thead>
<tr>
<th>Categories in the study</th>
<th>Average ±sdch.std</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>Lower quartile</th>
<th>Upper quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>58.7±6.1</td>
<td>59.0</td>
<td>45.0</td>
<td>70.0</td>
<td>55.0</td>
<td>64.0</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>27.5±4.6</td>
<td>27.1</td>
<td>18.4</td>
<td>59.2</td>
<td>24.2</td>
<td>29.7</td>
</tr>
<tr>
<td>Systolic body pressure (mm Hg)</td>
<td>132.3±14.5</td>
<td>130.0</td>
<td>100.0</td>
<td>170.0</td>
<td>120.0</td>
<td>140.0</td>
</tr>
<tr>
<td>Diastolic blood pressure (mm Hg)</td>
<td>79.9±10.2</td>
<td>80.0</td>
<td>60.0</td>
<td>100.0</td>
<td>70.0</td>
<td>85.0</td>
</tr>
<tr>
<td>Total cholesterol (mg%)</td>
<td>197.6±61.8</td>
<td>204.5</td>
<td>1.4</td>
<td>317.3</td>
<td>176.5</td>
<td>230.0</td>
</tr>
<tr>
<td>LDL fraction (mg%)</td>
<td>116.4±43.6</td>
<td>113.0</td>
<td>1.2</td>
<td>209.0</td>
<td>96.8</td>
<td>142.0</td>
</tr>
<tr>
<td>Triglycerides (mg%)</td>
<td>109.4±56.3</td>
<td>102.0</td>
<td>0.8</td>
<td>258.0</td>
<td>70.0</td>
<td>137.0</td>
</tr>
<tr>
<td>Glucose (mg%)</td>
<td>91.4±24.1</td>
<td>94.0</td>
<td>5.5</td>
<td>140.0</td>
<td>86.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

### Table 2.

The characteristics of the group under study (b)

<table>
<thead>
<tr>
<th>Categories in the study</th>
<th>Percentage of patients with incorrect values (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic blood pressure</td>
<td>53.8±140 mm Hg</td>
</tr>
<tr>
<td>Diastolic blood pressure</td>
<td>43.3±90 mm Hg</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>41.1±190 mg/dl</td>
</tr>
<tr>
<td>LDL fraction</td>
<td>4.0±115 mg/dl</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>21.0 &gt;150 mg/dl</td>
</tr>
<tr>
<td>Glucose</td>
<td>32.5&gt;110 mg/dl</td>
</tr>
</tbody>
</table>
in health treatments rarely or were undergoing one for the first time. Patients who live permanently in a city more frequently (46.5%) than people living in rural areas participated in sanatorium treatment, at least once or twice every two years – 38.4%.

Most patients – 60% of those with primary, vocational and secondary education underwent health treatment in sanatorium rarely or occasionally. Patients with higher education more often had regular stays in sanatorium when compared to patients with other levels of education.

The results of the study did not show a statistically significant correlation (p=0.8514) between the type of the work performed and the frequency of stays in sanatorium. The authors observed no correlation between the frequency of stays between white-collar workers – 45.5% and other types of jobs – 44.6%. Respondents of both groups were more often occasional rather than regular visitors to the health resort.

No statistically significant (p=0.4162) correlation between the level of monthly net income per one family member and the frequency of stays in sanatorium was found. Both groups of patients with low and high socio-economic status were more likely to undergo a health treatment in sanatorium occasionally rather than on a regular basis.

### Discussion

Numerous epidemiological studies that have been conducted, strongly suggest that medical services themselves as well as progress in their field, have significantly lower impact on the average life expectancy and quality of life than environmental factors, especially healthy lifestyle, and other related behavioral patterns of the individuals [1–18].

Having a good health, understood as a state of complete physical, mental and social well-being and not merely absence of a disease or infirmity (disability), is the most important determinant of high quality life. Having reached full maturity, the health condition of the human body starts to deteriorate significantly. Actually, the moment of birth itself initiates the ageing process of the human body. The level of physical fitness of adults gradually decreases and the probability of somatic diseases increases with age. There is a number of available measures and possibilities to maintain a high physical activity level until old age. Applying simple and clear principles of a healthy lifestyle and specific rules on disease prevention favors the maintenance of biological health resources.

Many of the diseases and ailments that mature adults and middle-aged people often complain about may be defined as lifestyle-related medical conditions. The etiology of those health problems is strongly connected with improper diet or lack of regular physical activity. In view of the above, it is essential for us to realize the importance of our individual behaviors and taking responsibility for our own health through changes in lifestyle and life philosophy.

The group in the study consisted of 450 patients aged between 45 and 70 of the 20 Military Spa and Rehabilitation Hospital in Krynica-Zdrój. Almost the entire group was referred to sanatorium treatment mainly due to mobility dysfunctions including, above all, degenerative overload changes of the spine and joints but also due to numerous comorbidities. Most of them were married residents of big cities with secondary or higher education. Over half of the patients were pensioners with monthly net income per one family member over PLN 1,500. Only 25% of the patients covered by the study underwent a health treatment for the first time, half of the respondents declared regular stays in the sanatorium and the group included approximately 8% more men than women. The majority of patients underwent regular health checks in order to monitor their state of health. The vast majority of the patients, both women and men, have had basic laboratory tests performed in the last two years prior their sanatorium treatment.

Studies conducted by many other authors show that health-related behaviors undertaken by individuals imply a dissimilar level of their frequency and intensity, which is often dependent on the socio-economic status of the respondents [19–27].

The impact of the group’s socio-economic factors on the selected elements of their lifestyle was analyzed. Patients declared they had regular mealtimes and participated in physical activity regardless of their education level. Respondents with the lowest level of education, but also those with higher education never engaged in regular strength exercises, and the later group also did not practice team sports. Walking turned out to be the preferred type of physical activity, irrespective of the respondents’ education level. Patients living in cities often underwent health treatments on a regular basis, while patients living in the rural areas declared occasional rather than regular participation in such treatments. Over half of the respondents who temporarily live in the country hardly ever took part in a sanatorium
treatment or was undergoing one for the first time. Patients with higher education, in contrary to the respondents with other level of education, more often underwent sanatorium treatments with a certain regularity (once every two years) rather than unsystematically. Respondents who performed white-collar jobs as well as other types of professions were about a tenth more likely to be occasional rather than regular visitors to a sanatorium. Both respondents with low and high economic status were more likely to participate in health and rehabilitation treatments occasionally rather than once every two years.

Studies conducted by other authors show the impact of socio-economic status on the shaping of lifestyle components as a determinant of good health. They confirm the differentiation of health-related behaviors based on such criteria as, among others, education, place of residence and material status [19–28]. In the study carried out by Gacek it was noted, that women with a higher economic status living in big cities are more likely to choose health-related behaviors [21].

Higher level of responsibility for one’s own health in terms of undertaking rational eating behaviors in the group of German seniors, as compared to those of Polish seniors has been confirmed by Gacek. The author has proved that it is largely due to the higher financial status of those living abroad [19].

Another study conducted by Gacek et al. has shown that the education level influences significantly the eating habits in the group of male patients under study. Men with basic vocational education more often declare the consumption of the so called “fast-food” products. Statistically significant differences in some anthropometric indexes of nutritional state and education level were also observed in the 40–60 age group of male patients. Men with basic vocational education had significantly higher values of WHR indexes when compared to patients with higher education [23,24].

The fact that, the choice of some health-related behaviors is strongly influenced by the level of education and place of residence was also confirmed by Nowakowski, who stated that people with lower education and thus worse financial condition, were more often focused on solving everyday problems and did not dedicate their time and energy to concentrate on the state of their own health. For this reason, they are less likely to be interested in health-related behaviors [26].

The study conducted by Muszalik et al. undoubtedly proves that indeed significantly higher level of good health practices is demonstrated by persons with higher level of education [27], which has also been confirmed by the study conducted by Zielińska–Więczkoswa et al. carried out among patients with hypertensive disease [28].

Conclusions

The education level together with economic status of the respondents have a statistically significant impact on the form of selected physical activity in the group under study. Patients with average income went for walks more often while remedial gymnastics was often practiced by patients with monthly net income above PLN 1.500.

No statistically significant correlations between the education level and economic status of the patients and the regularity of meals as well as the number of hours devoted to sleep was stated.

The correlation between the frequency of stays in sanatorium and the place of residence, education level, type of work performed as well as wealth level was not found.

References

Streszczenie

Material i metody: W badaniu wzięło udział 450 pacjentów (300 kobiet i 150 mężczyzn) przebywających na turnusach uzdrowiskowo-rehabilitacyjnych w Krakowie.

Wyniki i wnioski: W badaniu wykazano istotne zależności pomiędzy poziomem wykształcenia a podejmowaniem różnych zachowań zdrowotnych. Wnioski wskazują na istotne wpływy czynników społeczno-ekonomicznych na podejmowanie zachowań zdrowotnych w populacji osób starszych.

Słowa kluczowe: zachowania zdrowotne, czynniki społeczno-ekonomiczne, badania uzdrowiskowo-rehabilitacyjne.