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Author: Michal Olah

An interdisciplinary perspective on prevention II

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Editors

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cswjournal@gmail.com

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Treating Syrian refugees at the Czech border

Contact

International Gesellschaft für angewandte Präventionsmedizin i-gap e.V.
(International Society of Applied Preventive Medicine i-gap)
Währinger Str. 63 A-1090
Vienna, Austria
Tel. : +49 - 176 - 24215020
Fax : +43 / 1 4083 13 129
Mail : office@i-gap.org
Web : www.i-gap.org

Visiting Editors
Nadezda Jankelova, Ivan S. Mironyuk

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Editorial

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This issue of the Clinical and Social Intervention Journal is devoted to the main pillars of public health, starting with epidemiology, community medicine, through biostatistics and informatics to behavioural sciences, management and policies in public health. The contributions are compiled so as to present a holistic view of current public health problems, indicate the need for their solution in a wider interdisciplinary context, and to enable the fulfilment of the main goals in this area along with future challenges.

This issue of the journal has been created thanks to the contribution of teachers of various higher education institutions, namely: the Slovak Medical University in Bratislava – Faculty of Public Health, Faculty of Business Economics, University of Economic in Bratislava, St. Elizabeth University of Health and Social Sciences, Bratislava; the Catholic University in Ruzomberok – Faculty of Health; Tomas Bata University in Zlin – Faculty of Humanities and Faculty of Management and Economics.

This underlines the fact that this topic is very important and remains highly relevant.

The articles are focused on health literacy of the population in the field of diseases of civilization. At the same time, they specifically point out the aspects of health literacy of adult patients through the eyes of nurses. Considering the technological challenges, the issues of cyberbullying and prevention against this phenomenon are not omitted in the contributions. Current social events also require solving problems in the field of human trafficking and addressing the importance of preventive activities in this area. Other studies are devoted to issues of social support and selected preventable determinants of lifestyle in people with vertebrogenic problems, as well as the occurrence of arterial hypertension in patients with sleep apnea syndrome. An important part is analyses in the field of economic aspects of prevention, which are necessary in view of the current state of health care. The managerial aspect of public healthcare results both in the need to implement the principles of lean management in organizations providing healthcare, but also in the synthesis of knowledge in the form of challenges for healthcare managers for the future.

We do have a common goal - whether from the point of view of medicine, nursing, social work, management and economics or public health - which is to prevent and protect the health of our citizens.

prof. Ing. Nadežda Jankelová, PhD, MPH1
Faculty of Public Health,
Slovak Medical University, Bratislava – teacher
Faculty of Bussiness Management,
Economic University Bratislava – teacher

Prof. Ivan S. Mironyuk MD.PhD.
Uzhorod National University, UA

Health Literacy of the Inhabitants of easter Slovakia regarding Disease of Civilization – survey Results

M. Belovičová (Maria Belovicova)[1], N. Jankelová (Nada Jankelova)[1,2] , K. Dostalova (Katarina Dostalova)[1], N. Jankelova (Nadezda Jankelova)[1,3], S. Moricova (Stefania Moricova)[1]

[1] Faculty of Public Health, Slovak Medical University, Bratislava, Slovakia.
[2] Bratislava Bory Hospital, Slovakia.
[3] Faculty of Business Management, Economic University Bratislava, Slovakia.

Original Article

E-mail address:

mriab9@gmail.com

Reprint address:

Maria Belovicova
Becherov 145
086 35 Becherov
Slovakia

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Reviewers:

Vlastimil Kozon
General Hospital - Medical University Campus, Vienna, AT
Steve Szydlowski
University of Scranton school of education, USA

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Abstract:

Introduction: Diseases of civilization represent a group of diseases that have common risk factors as a result of long-term exposure to an unhealthy lifestyle, an unhealthy diet, smoking, a lack of physical activity and stress.
Aim of the research: To find out whether random respondents who took part in the "Days of Health" event at the Bardejov Spa have basic knowledge about diseases of civilization. Based on the findings, draw recommendations for practice.
Research sample group: 398 respondents: 305 women and 93 men. The average age of the respondents was 56.4 years (+-12.8 years).
Methodology: On a voluntary and anonymous basis, the patients filled out a questionnaire focused on their knowledge

about diseases of civilization. The questionnaire contained both closed and open questions.
Results: The authors of the article analyzed respondents' answers. The results were statistically processed.
Conclusion: Our results show that there is a need for repeated interventions by health care workers (doctors, nurses) and public health workers to spread awareness about diseases of civilization and the possibility of their prevention. Increasing the level of health literacy is a good prerequisite for a healthier population.

Biography of the first author

I graduated from the Comenius University Faculty of Medicine in Bratislava in 1999. From 1999 to 2010, I worked in Bratislava as a doctor and a senior assistant at the Slovak Medical University. I earned a PhD title in 2004, and in 2010 I received the title of Associate Professor in Public Health. Since 2010 I have been acting as an expert guarantor of the outpatients clinic Remedium s.r.o. at the Bardejov Spa, and I taught at St. Elizabeth University of Health and Social Sciences from 2010-2022. Since January 1, 2023, I have been working at the Faculty of Public Health at the Slovak Medical University in Bratislava. At the Bardejov Spa, I have created a place for non-pharmacological treatment of obesity in adults and a doctor's office for non-invasive diagnosis of liver diseases. I am the president of the Slovak Society of Practical Obesitology. I attended several study stays abroad, organized 9 interdisciplinary conferences with international participation and I regularly give lectures at domestic and foreign specialized events.

Introduction

Diseases of civilization represent a group of diseases that have common risk factors as a result of long-term exposure to an unhealthy lifestyle, an unhealthy diet, smoking, a lack of physical activity and stress. The issue of diseases of civilization is a complex societal problem (1, 2).

Every year, 39.5 million people die from chronic diseases. If the current situation is maintained, by 2030 the number of deaths caused by chronic diseases will increase to 55 million (3). In terms of causes of death in the Slovak population, diseases of civilization occupy a dominant place (1).

Diseases of civilization become more common in ageing societies (4).The frail elderly (5) sooner or later lose the ability to care for themselves (6) and become dependent on others (7) or disabled (8). This requires extensive support and care in their local environment and often ends up with institutionalization (9). Otherwise they are at risk of neglect or suicide (10). The elderly suffer from multiple crippling chronic diseases, and therefore they require medical treatment that utilizes modern medical technologies (11), is often intensive and prolonged (12), is burdened with complications (13) and is thus also more expensive (14).

Health literacy is a concept that is starting to appear more and more often in today's world. Health literacy is the ability of an individual to obtain, process and understand basic information about health and health care services, which is necessary for making the right decisions regarding one's health (15). Increasing the level of health literacy is a good prerequisite for a healthier population based on the assumption that people will approach their health more responsibly and make greater use of prevention (16).

In the modern world where access to information relies more on computer systems and the Internet with each passing year (17), digital literacy, which refers to people possessing the set of skills that allows them to use electronic resources, becomes crucial for obtaining information on health and health services (18). In addition, people need to be able to use it in a safe (19) and secure way (20), to properly document things for administrative use (21) or legal proceedings (22). Telemedicine has been proving its usefulness for many years (23), but finally it was confirmed during the COVID-19 pandemic (24). Unfortunately, these skills are especially scarce among the elderly. This is known as digital exclusion, and improving these skills on a large scale requires systemic approach (25).

Prevention includes a wide range of activities and interventions aimed at reducing risks and threats to the health of society. This is characterized as a state with the highest possible level of health and the smallest possible inequalities when it comes to the health of members of society, which can be achieved by taking into account the socioeconomic level and the level of health care of the given community. It requires an organized effort by society as a whole that is ensured through public and community policy (26).

It is also important to maintain a healthy lifestyle, which is a set of voluntary human activities, reactions to external stimuli, behavior in various life situations, and ways of solving problems and satisfying personal needs that are based on individual choices from various options. The main principles of a healthy lifestyle include a varied and balanced diet, an appropriate choice of exercise, and avoiding smoking, harmful substances and alcohol. One should have good quality sleep, optimism, be in a good mood, avoid stress and get regular rest (27).

Due to the need to spread awareness about diseases of civilization, in 2022 in cooperation with other partners (Bardejov Spa, a.s., town of Bardejov, the Regional Public Health Office with the seat in Bardejov, General Health Insurance, Dôvera Health Insurance, Union Health Insurance), the Slovak Society of Practical Obesitology organized another edition of an event under the name "Days of Health" for the lay public in the colonnade of the Bardejov Spa. All examinations were carried out on a voluntary basis, anonymously and free of charge (28).

Aim of the research

To find out whether random respondents who took part in the "Days of Health" event at the Bardejov Spa have basic knowledge about diseases of civilization. Based on the findings, draw recommendations for practice.

Research sample group

398 respondents: 305 women and 93 men. The average age of the respondents was 56.4 years (+-12.8 years).

Methodology

The participants of the event had the opportunity to have their blood pressure, pulse, waist circumference and hip circumference measured and to have the measurements taken on a Tanita scale. The Tanita SC-240 MA scale is a portable body analyzer that has a weighing capacity of 200 kg and an accuracy of 100 g. It works on the principle of bioelectrical impedance, which determines body fat content by calculation after measuring body resistance. Body resistance changes according to the content of fat and water (29).

In addition, we examined the values of glycemia, the fat spectrum, CRP (C reactive protein), antibodies against hepatitis C (rapid diagnostic test Turklab), vitamin D and TSH (thyroid stimulating hormone) from capillary blood. The participants of the event received the book Liver and Nutrition with information about liver diseases and recipes for a basic liver diet.

Health insurance companies prepared counselling on diabetes mellitus, breast cancer prevention (education and guidance on a breast model), prevention of occult bleeding and weighed people on an InBody scale. In addition, they also took measurements of cholesterol, uric acid, blood glucose and hemoglobin levels.

The patients filled out a questionnaire focused on their knowledge about diseases of civilization on a voluntary and anonymous basis. The questionnaire contained both closed and open questions. The total number of questions was 32 (including demographic ones). The questions focused on their diet (e.g., how many times a day respondents eat; whether they eat breakfast, lunch, dinner; how many times during a week they consume fruit, vegetables, meat products and fish. We also asked about the variety of their diet), drinking regime (how much fluid they drink per day; whether they consume non-alcoholic sweetened beverages and with what frequency; whether and, if so, how often they consume alcohol). We also asked respondents about their physical activity, whether they are satisfied with their weight and what knowledge they have about obesity, their own blood pressure, cholesterol level, blood glucose level and diseases such as diabetes mellitus. We received interesting answers to the question asking where the respondents get information about obesity and other diseases of civilization. We processed the results statistically.

Results

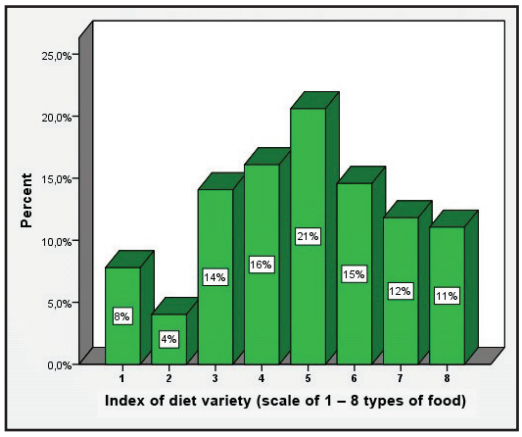
Our research sample group consisted of 398 respondents: 305 women and 93 men. The average age of respondents was 56.4 years (+-12.8 years). 227 respondents (57%) had secondary school education, 110 respondents had university education (27.6%) and 61 respondents had completed either elementary school or secondary school without a school leaving examination. In our sample group, 175 respondents (44% of the group) had normal weight, and 223 respondents (56% of the group) were overweight or obese (135 patients were overweight, 88 patients were obese). 55% of the group reported dissatisfaction with their weight, and around 34% of respondents admitted to having problems with obesity. 69% of the respondents were convinced that Slovakia belongs to countries with a high prevalence of obesity.

One part of the questions in the questionnaire was focused on eating habits: 54% of respondents said they eat 3 times a day. The fact that 69.8% of respondents eat breakfast daily was very pleasing. 81.9% of the group has lunch daily, and 74.6% of respondents have dinner every day. We wanted to know if the COVID-19 pandemic affected the respondents' diets in any way. 26% of the group believed it did, and 54% did not feel any change in their diet. Some of the respondents could not answer the question or had not thought about it. We also asked the respondents about the variety of their diet. They could choose more options (dairy products, eggs, fruit, vegetables, smoked meat products, cereals, white meat - chicken, turkey, red meat - beef, pork and pastries). They had the opportunity to list other foods that they often consume. 28% of respondents stated that they had 1-3 types of the listed foods in their menu, and 37% of respondents stated that they had 4-5 types of the listed foods in their menu. 38% of respondents said that they had 6-8 of the listed types of foods in their diet. The results are displayed Graph 1.

At the same time, we analyzed whether the variety of a diet is related to the incidence of obesity among respondents. We found that obesity is statistically significantly more common in respondents with a low variety in their diet (p = 0.049). The results are displayed in Graph 2.

When analyzing the relationship between the frequency of fruit/vegetable consumption and the occurrence of obesity, we confirmed our assumption that the lower the consumption of fruit/vegetables, the more frequent the occurrence of obesity (Pearson = 0.128**).

Graph 1 Index of variety of respondents' diets



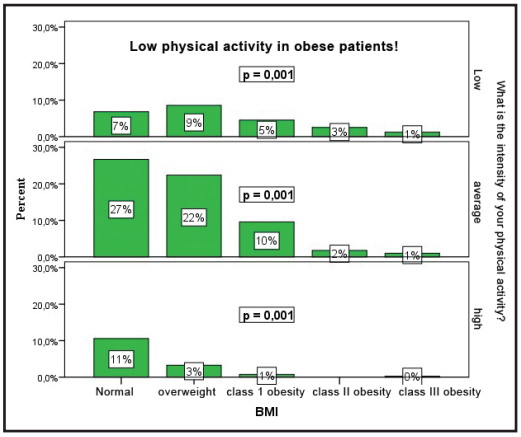
Graph 2 Index of dietary diversity and the connection with the development of obesity

The answers about their drinking regime were not very satisfactory: only 59.5% of respondents drink 1-2 liters of liquids per day, and 20.1% of the group drink less than 1 liter per day. 36.7% of the group stated that they drink sweetened soft drinks, of which 19% drink them 1-2 times a week. 239 respondents (60%) stated that they consume alcoholic beverages (14% regularly, 46% occasionally).

We also asked the respondents about their physical activity: 24% indicated low physical activity, 61% average physical activity and 15%

high physical activity. We analyzed the mutual connections between physical activity and the incidence of obesity. According to our expectations, it was confirmed that obesity is statistically significantly more frequent among respondents with low physical activity ($p = 0.001$). The results are shown in Graph 3.

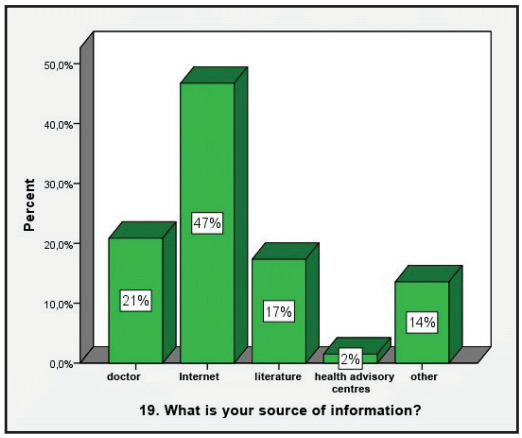
Graph 3 Connection between the development of obesity and the intensity of physical activity



In the next part of the questionnaire, we asked the respondents about their knowledge of diseases of civilization. When asked if it is necessary to prevent diseases, 96% of respondents gave a positive answer. From other answers we selected the following: 31% of respondents knew their blood pressure values, 51% of respondents knew their cholesterol level and 63% knew their blood glucose level. We believe that the higher knowledge percentage of the answers was due to the fact that the respondents attended the "Days of Health" event and had the opportunity to have their blood sugar and cholesterol levels measured. Probably not everyone had their blood pressure measured.

We were rather surprised by the respondents' answers regarding the source of information on diseases of civilization. Around 47% of respondents obtain information from the Internet, only 21% get it from a doctor and only 2% of respondents get information from health advisory centers that work at RÚVZ (regional public health offices). The respondents' answers are shown in more detail in Graph 4. These answers make us think about improving the care of our patients.

Graph 4 Source of respondents' information about diseases of civilization



Discussion

Adequate nutrition is a fundamental pillar of healthy human development. The results of many international and national epidemiological studies confirm that harmful nutritional factors such as a positive energy balance, increased intake of saturated fatty acids and reduced intake of unsaturated fatty acids, fiber and antioxidants, insufficient intake of minerals, especially calcium, potassium, magnesium, iodine and some micronutrients such as selenium, and excessive sodium intake have a significant impact on the occurrence of diseases of civilization of non-infectious origin (30).

The most common diseases of civilization include overweight, obesity, heart and vascular system diseases, myocardial infarction, diabetes mellitus (DM), fat metabolism disorders, high blood pressure, atherosclerosis, sudden strokes, cancer, depression, Parkinson's disease, immune disorders, allergies, asthma, chronic obstructive pulmonary disease, neurological and mental diseases (burnout syndrome and chronic fatigue syndrome), Alzheimer's disease, osteoporosis, arthritis, joint diseases, chemical sensitivity syndrome, sick building syndrome, fibromyalgia, sleep disorders and constipation (31).

In recent decades, fundamental changes in society have significantly affected behavioral patterns at all levels of the human population. Constantly changing living conditions increase the demands on human adaptability - the neuropsychic load increases, but physical activity is, on the contrary, on the decline. According to

data from the World Health Organization, 30 to 70% of the adult population in the European region is overweight (30, 32).

In our research sample group, 175 respondents (44% of the group) had normal weight, and 223 respondents (56% of the group) were overweight or obese.

It is realistic to believe that the global COVID-19 pandemic, lockdown and subsequent measures and restrictions could have also had a positive impact by increasing interest in home cooking, which could have a positive as well as a negative impact on lifestyle, especially when it comes to eating. This fact corresponds with our results that show 69.8% of respondents eat breakfast daily and with the results of research (33) focused on university students, who during the COVID-19 pandemic did not show such frequent skipping of breakfast as the first meal of the day as they did before the global COVID-19 pandemic.

When analyzing the composition of respondents' diets, we determined whether the variety of a diet is related to the occurrence of obesity. We found that obesity was statistically significantly more frequent in respondents with a low-variety diet ($p = 0.049$). The respondents' drinking regime was not optimal: only 59.5% of respondents drank 1-2 liters of liquids per day. Around 40% of respondents (36.7%) stated that they drink sweetened soft drinks, of which 19% drink them 1-2 times a week. Sugar-sweetened beverages can represent an average of up to 356 kcal per day in addition to the consumed food (approx. 19% of the total daily energy intake). Even a reduction of 100 kcal brings the positive effect of a decrease in body weight. Therefore, replacing drinks of this type with non-caloric ones significantly contributes to a decrease in body weight (34). Fruit juices and sweetened lemonades contain the most energy. One liter of 100% fruit juice labelled as "sugar free" contains the energy equivalent to approximately 30 sugar cubes. Such fruit juice has an average energy value of 2000-2500 kJ. The title "sugar-free" means that no beet sugar is added, but the fruit juices already contain fruit sugar - fructose (35).

In general, the population of the EU, Slovakia included, shows an increasingly lower level of physical activity, which ultimately causes an increase in the incidence of overweight and obesity (30).

24% of respondents in our research sample group indicated having a low level of physical activity and 61% indicated an average level. According to our expectations, the statistical analysis of the set confirmed that obesity was statistically significantly more frequent in respondents with low physical activity ($p = 0.001$).

Physical activity is a critically underutilized preventive strategy with extensive health benefits. This is not only true regarding prevention in healthy people (36), but also with patients with several chronic non-infectious diseases of civilization. Hypokinesis increases the possibility of the incidence of 35 chronic diseases. In order to maintain, strengthen and support health, physical movement is essential and necessary. It is also beneficial for existing health problems. For this reason, it is necessary to make efforts to educate the lay public and point out the importance of including physical activity in individuals' lifestyles at all social levels (37).

We were rather surprised by the respondents' answers regarding their sources of information on diseases of civilization. Around 47% of respondents obtain information from the Internet, only 21% get it from a doctor, and only 2% of respondents get information from health advisory centers. It is necessary to promote the activity of these centers, as they perform a meritorious activity for the population.

Primary care providers also have the opportunity to positively influence the level of health literacy; they can pay attention to prevention and support as well as the development of the health literacy of their patients (16). We do expect to reduce the prevalence of overweight and obesity as well as that of other diseases of civilization by increasing the level of health literacy and the level of education achieved by the population.

Conclusions

The World Health Organization defines health literacy as cognitive and social skills that determine the ability and motivation of individuals in the population to be able to obtain relevant information, understand it and then use it to positively influence their health (16).

Our results show that there is a need for repeated interventions by health care workers (doctors, nurses) and public health workers to spread awareness about diseases of civilization

and the possibilities of their prevention. Events focused on prevention where the lay public has an opportunity to meet these kinds of professionals are of great benefit to them. For this reason, direct education is also necessary in this area (38). At such events, there is the possibility to have direct contact with medical professionals, have examinations without a long wait, get a consultation about one's examination results, obtain education directly on the spot and receive educational brochures. Of course, such events also contribute to increasing the health literacy of a population.

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The Significance of preventive Activities in the Field of human trafficking

D. Barkasi (Daniela Barkasi)[1], R. Barta (Richard Barta)[2]

Original Article

[1] St. Elizabeth University of Health and Social Sciences, Bratislava, Institute bl. M. D. Trcku Michalovce, Slovakia.
[2] St. Elizabeth University of Health and Social Sciences, Bratislava, Institute bl. Z. J. Mallu Košice, Slovakia.

E-mail address:

daniela.barkasi@gmail.com

Reprint address:

Daniela Barkasi
Hrnciarska 8
071 01 Michalovce
Slovakia

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Reviewers:

Gabriela Lezcano
University of California, San Francisco, USA
Roberto Cauda
Institute of Infectious Diseases, Catholic University of the Sacred Heart, Rome, IT

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Abstract:

Introduction: Slovakia is considered a country of origin for victims of human trafficking. The target destination for citizens of the Slovak Republic is mainly Western European countries. In the period from 2011 to 2014, 57% of IOM clients in Slovakia were assisted by victims of human trafficking in Great Britain. According to estimates, there are 30 to 40 million victims of human trafficking worldwide.

Research aim and objectives: The aim of our research was to highlight the importance of preventive activities for young people in the field of human trafficking. The sub-goals were to determine the level of knowledge of secondary school and grammar school students in the Michalovce district from the points of view of completing preventive activities in the field of human trafficking, gender and type of school.

Methods: To test the hypotheses, we used Pearson's chi-square test of independence at a significance level of 0.05.
Results: We discovered that differences in the level of knowledge exist among students who completed preventive activities and between men and women. No differences were found in the level of knowledge of human trafficking by school type.
Conclusion: Our research shows the clear importance of carrying out preventive activities, which have their justification both in the area of prevention as well as in providing useful information and pitfalls that young people may face when traveling abroad for work.

Biography of the first author

In 2006, I completed my master's studies in the field of physics and biology at the Faculty of Natural Sciences of the UPJŠ in Košice, where I subsequently took a rigorous exam in the field of biology. I finished my PhD studies at the Faculty of Woodworking TU in Zvolen in 2010. I completed master's and doctoral studies in the field of social work. Since 2010, I have been working at the University of Health and Social Work of St. Elizabeth in Bratislava. In 2019, I completed the habilitation procedure in the field of social work. At the Institute of BL. Metod Dominik Trčka VSZaSP of St. Elizabeth, I currently work as the head of the Department for Bachelor's Studies in the study field of social work. I am a lecturer and supervisor in the field of social services. I participated in the organization of several international conferences. I regularly take part in domestic and foreign professional events as an active participant.

Introduction

Human trafficking appeared as a phenomenon in our territory after 1989. The most common means for human traffickers to obtain victims is mainly the vision of a lucrative job with good earnings abroad. It is difficult to know the exact numbers of victims of human trafficking because police statistics do not record the number of trafficked persons, but only the cases where a charge of the crime of human trafficking has been raised. It is therefore very important to take significant steps to introduce adequate preventive measures that would eliminate the risks associated with working abroad. The primary international document that regulates this issue on a legislative level, especially for women and children, is the Additional Protocol on the Prevention, Suppression and Punishment of Trafficking of Human Beings, which supplements the UN Convention against Transnational Organized Crime. It contains the first generally accepted definition of human trafficking, which is characterized as the recruitment, transportation, transfer, harboring or acquisition of people under the threat of violence, kidnapping, fraud, enforcement, or taking advantage of position, under which this person has no other real and acceptable option, only to succumb to the threat, by providing or receiving money or other benefit in order to obtain the consent of a person having control over another person for the purpose of their abuse, regardless of whether the victims of trafficking agreed to the purpose of the abuse. Abuse includes, as a minimum, exploitation by prostitution of others or other forms of sexual abuse, forced labor or services, slavery or practices similar to slavery, enslavement or the harvesting of organs for illegal purposes (1). Social work has an important position in the prevention of human trafficking, the specificity of which is a comprehensive approach to clients' problems, which are understood in a holistic social context (2).

Prevention is very important in the field of human trafficking. The goal of primary prevention is to provide information and social skills that will help reduce the likelihood of negative development. This form of prevention has been implemented in schools for the long run, and the educational program "Prevention of Human Trafficking", which is designed for 9th grade elementary school and high school students, has been running for eighteen years. School management has an important position in this area when it comes to sharing good practices among schools (3). The main goal of the programmes is to teach students how to recognize the danger of

human trafficking, how to prevent its occurrence and how to behave in situations where a person may be trafficked. Many activities aimed at preventing this negative phenomenon are implemented within such programmes.

Research goal

The main goal of our research was to highlight the importance of preventive activities for young people in the field of human trafficking. The sub-goals were to determine the level of knowledge of secondary school and grammar school students in the Michalovce district from the point of view of completing preventive activities in the field of human trafficking, and, furthermore, to determine the differences between students who completed preventive activities and their level of knowledge in terms of gender and school type.

Collection and methodology

Our research was carried out at 12 secondary schools and grammar schools in the Michalovce district that are in the territory of the Košice self-governing region. More specifically, we conducted the research at 4 grammar schools and 8 secondary vocational schools in Michalovce, Veľké Kapušany and Sobrance. The research sample was chosen by deliberate selection and was represented by students in the final grades of secondary schools and grammar schools. The research sample consisted of 601 respondents, of which 236 respondents were from grammar schools and 365 from secondary vocational schools. Of these 12 secondary schools, 2 were private schools and 10 of them were under the founding authority of the Košice self-governing region. Of the total number of respondents, 395 were women, representing 66%, and 206 were men, representing 34%. The respondents were aged between 19 and 21 years. As a tool, we used a questionnaire of our own construction that included socio-demographic questions and questions related to the subject area. At the same time, the schools were differentiated by the fact that not all the schools implemented preventive activities in this area.

Results

Around 46% of respondents answered that they consider our country to be a country of origin of victims of human trafficking. 49% of respondents consider our country a transit country, and 5% of respondents could not answer this question. As for the most frequent target countries for illegal human trafficking, 62% of these young people answered that it is the countries of Western Europe, 25% of the respondents think that it is the countries of Southern Europe and 13% of respondents could not answer. As many as 92% of respondents stated that they have not met a person, nor do they know a person, who was a victim of human trafficking. 8% of respondents have a person in their environment or know someone who has become a victim of human trafficking. In the group of people who completed preventive activities, up to 93% said they know of the Safe mobile application designed to help victims of human trafficking. In the group of students who had not taken part in any preventive activities, only 13% knew of this application.

In H1, we assumed that there are differences in the level of knowledge among students in terms of completing preventive activities. Based on the items related to this issue, we can conclude that this hypothesis was confirmed based on the results in Table 1 of the observed values, since based on the statistical processing of the Pearson chi-square test of independence, the value is higher ($x2 = 157.2774$) than the critical table value 3.84 and the calculated p value ($p = 4.45189E-36$) is well below the chosen level of significance of 0.05. Therefore we can conclude that there is a significant difference in the level of knowledge among students in terms of completing preventive activities. **Hypothesis 1 was confirmed.**

We tested the second hypothesis based on the items related to the knowledge of human trafficking by gender. A statistically significant difference was found in the analysis of relationships. The calculated p value of 4.16772E-13 is also well below the chosen significance level of 0.05 and the calculated chi-square $x2 = 52.5625$ is higher than the critical table value of 3.84. Based on the testing results, we can reject the null hypothesis H0 and accept the alternative hypothesis HA, that is, there are differences in the level of knowledge among students in terms of gender. **Hypothesis 2 was confirmed.** To verify the last hypothesis, Pearson's chi-square test was

Table 1 Evaluation of hypothesis 1

observed frequencies	**knowledge of human trafficking**		
	have knowledge	do not have knowledge	total
Educated	288	96	384
Uneducated	48	169	217
Total	336	265	601
expected frequencies	**knowledge of human trafficking**		
	have knowledge	do not have knowledge	total
Educated	214,6821963	169,3178037	384
Uneducated	121,3178037	95,68219634	217
Total	336	265	601

Table 2 Evaluation of hypothesis 2

observed frequencies	**knowledge of human trafficking**		
Gender	have knowledge	do not have knowledge	Total
Female	221	35	256
Male	67	61	128
Total	288	96	384
expected frequencies	**knowledge of human trafficking**		
Gender	have knowledge	do not have knowledge	Total
Female	192	64	256
Male	96	32	128
Total	288	96	384

Table 3 Evaluation of hypothesis 3

observed frequencies	**knowledge of human trafficking**		
Type of school	have knowledge	do not have knowledge	Total
Grammar schools	140	46	186
Vocational schools	148	50	198
Total	288	96	384
expected frequencies	**knowledge of human trafficking**		
Type of school	have knowledge	do not have knowledge	Total
Grammar schools	139,5	46,5	186
Vocational schools	148,5	49,5	198
Total	288	96	384

also used for the calculation. We put the school type variable into a causal relationship with students' knowledge of human trafficking. The marginal chi-square at the chosen significance of 0.05 is 3.84. In our case, the calculated value of chi-square (c2 = 0.013902) is lower than the table value of df 1. The calculated p-value of 0.906139986 is higher than the chosen significance of 0.05. Therefore, based on the test results we can reject the alternative hypothesis and accept the null hypothesis. This means that there is no difference in the level of knowledge among students from the point of view of the school type. **Hypothesis 3 was not confirmed.**

Discussion

The field of human trafficking is very important, especially among the group of young people who plan to find a job after graduation. They are often tempted by various lucrative job offers abroad. It is therefore very important that they are sufficiently informed about the pitfalls of speculative job offers, especially abroad. A number of organizations in cooperation with the Ministry of Interior of the Slovak Republic are dedicated to providing education in this area and implementing various preventive activities aimed at providing useful information on this issue to the greatest possible extent. Our results coincide with a survey by the author Rosová (2013), who came to very similar findings in her research in the area of awareness and knowledge about the issue of human trafficking (4). Frequent victims of human traffickers are women of Roma ethnicity in poor social situations, which makes them more vulnerable and easily available for human trafficking (5). Our research revealed the unequivocal importance of preventive activities in the area of human trafficking, as a certain level of awareness and knowledge was found in the group of students who completed these activities. We also discovered that in the group of students who completed these preventive and educational activities, the level of knowledge was higher among female students. The fact that females achieved a higher level of knowledge in this area is a favorable result, as according to statistics, women are victims of human trafficking more frequently than men (1). Furthermore, in 2012 it was found out that the most frequent victims of human trafficking were women from the Košice region (5). From the school type point of view, we did not notice any differences.

Based on our research, it would be appropriate to continue implementing preventive activities in the field of human trafficking. This not only goes for the group of graduating high school students, but attention also needs to be focused on groups of people who are applicants for employment at UPSVaR, people in Roma communities and foster children in centers for children and families.

Conclusion

Human trafficking is considered one of the most serious latent crimes and violates basic human rights and freedoms. It is a serious phenomenon that affects countries all over the world, including our country. Many years of practical experience in the implementation of preventive activities aimed at the field of human trafficking are acknowledged by the results of our research as well, where it was clearly established that their implementation is of great importance. It is extremely important to pay attention to social work in the prevention of socio-pathological phenomena and in the prevention of human trafficking. At the same time this also allows us to indicate the possible field of activity for a social worker in the field of prevention of social pathology.

The results of the conducted research and the actual professional experience of preventionists from the ranks of various organizations and institutions that implement educational programmes in schools can help motivate other institutions to work to prevent human trafficking.

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Application of lean Management Principles in Hospitals in Slovakia

N. Jankelova (Nada Jankelova)[1,2], M. Belovicoa (Maria Belovicova)[1], N. Jankelova (Nadezda Jankelova) [1], S. Moricova (Stefania Moricova) [1,2], M. Mucska (Matej Mucska)[1]

[1] Faculty of Public Health, Slovak Medical University, Bratislava, Slovakia.
[2] Bratislava Bory Hospital, Slovakia.
[3] Faculty of Business Management, Economic University Bratislava, Slovakia.

Original Article

E-mail address:

nadezda.jankelova@szu.sk

Reprint address:

Nada Jankelova
Hollého 29
900 31 Stupava
Slovakia

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Reviewers:

Jirina Kafkova
MSF, Freetown, SL
Selvaraj Subramanian
SAAaRMM, Kuala Lumpur, MY

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Abstract:

Introduction: Healthcare worldwide is struggling with many problems that have been escalated by the Covid-19 pandemic and the military conflict in Ukraine. The gap between the possibilities and the needs in the provision of health services is opening more and more. Therefore, it is necessary to look for ways to streamline processes at the level of the hospitals themselves and their management.

Research aim and objectives: The aim of the research was to examine the mutual connections between the use of lean management principles and the ratings of hospitals in the Slovak Republic and to identify the influence of external and internal factors in this relationship. The sample consisted of 175 managers from 35 hospitals.

Methods: To verify the hypotheses, the SEM method was used in the Smart Pls 3.3 software at a significance level of 0.05.
Results: We discovered that there is a statistically significant connection between the use of lean principles and hospital ratings. If other variables enter the model, the overall effect of the mentioned variables is significantly increased. The stakeholder demands variable has a significant mediating effect ($\beta = 0.470$; $p=0.000$). The social lean climate variable has a lower indirect effect in the Slovak environment ($\beta = 0.291$; $p=0.000$).
Conclusion: Our research shows the unequivocal importance of applying the principles of lean management in healthcare. There is ever-increasing pressure to increase quality and improve process efficiency from various stakeholders as well as pressure from within hospitals.

Biography of the first author

I graduated from the Faculty of Medicine of the Slovak Medical University in Bratislava in 2021. After finishing school, I completed management specialization studies and received a professional MBA degree. I currently work as a doctor in the Radiology Department of Bory Hospital in Bratislava. I am in the first year of doctoral studies at the Faculty of Public Health of the Slovak Medical University in Bratislava.

Introduction

Healthcare is currently going through significant challenges. On one hand there are technological developments, innovations, demographic trends and changing lifestyles of residents, and on the other there are limited financial resources. These are the real conditions that healthcare managers at all levels must face in order to satisfy the needs and demands of patients and residents. The available research results show that the demands for improving healthcare and the related costs will increase in the future. It seems that the solution to this problem lies in innovation, the management of healthcare in new directions more efficiently, better quality and lower costs (1). Healthcare managers in a variety of positions encounter situations that require the ability to respond immediately and appropriately. This not only applies to medical interventions in the provision of health care, but also to problems of a different nature that require the ability to be prepared to manage crisis situations and emergency events in a healthcare facility (2). Macroeconomic challenges have an impact on healthcare facilities themselves, which are struggling with problems of all kinds of resources, whether material, financial or human. The turbulent environment, also marked by the recent Covid-19 pandemic and the war conflict in Ukraine, places high demands on the skills of healthcare managers (2,3). Their primary role is to find solutions to maintain a high-quality, high-performing healthcare workforce with limited financial resources. Therefore, one of the solutions is the constant streamlining of processes, which is part of quality management. The goal of quality management is to achieve continuous improvement of the quality of the provided healthcare with regard to patient and employee safety (4). It turns out that slow approaches to quality improvement, which have been successfully implemented in the business world for many years, are also the way to go for the healthcare sector (5). These approaches can not only solve problems at the level of individual facilities, but according to the authors Suárez Barraza and Miguel-Dávila (6), they can contribute to building a culture of continuous improvement at the level of municipalities, cities, regions and countries. They are based on the fact that change comes from within. It is therefore better accepted because it is linked to the commitment of employees and is communicated, not mandated by formal non-transparent regulations (7). Many studies have pointed to the positive effects of such implemented changes for improving patient care and outcomes,

operational performance, employee satisfaction and population health (8).

For many years the healthcare sector was dominated by the opinion that professional and clinical knowledge is sufficient for managing healthcare organizations. Uncertainty, complexity and ambiguity in the external environment require deep managerial and organizational awareness with the aim of an effective patient journey while ensuring safety and quality (9).

In line with the above and with slow improvement methodologies, lean management is one of the ways to achieve this goal. Many countries already have positive experiences with the implementation of this methodology - Denmark, Sweden, Great Britain, the USA, etc. The healthcare sector in the Slovak Republic is no exception. Despite the initial resistance of workers, an ever-increasing number of healthcare organizations have been reporting the results achieved for some time in renowned healthcare periodicals. Therefore, there is no a priori reason against the implementation of lean thinking even in the Slovak conditions of mandatory implementation of quality management systems based on the principle of procedural management in healthcare facilities.

The philosophy of lean thinking is a systematic attack on waste in any form. Waste is the key to understanding efficiency and the target of cost-saving activities in an effort to increase the value of the activities performed. The way to this goal is the five principles of lean thinking, which, according to studies, lead to an increase in the performance of hospitals and other healthcare facilities. The basis of lean philosophy is the identification of activities that create value and the elimination of activities that do not create value. After identifying the value, the next step is the 5S method and visualization in the workplace. Thanks to these two pillars, we can introduce other lean methods into healthcare. Lean thinking can help hospitals and other healthcare facilities, especially in the area of cost savings and when it comes to improving the efficiency and timeliness of service delivery and quality. At the same time, emphasis is placed on high-quality healthcare and patient safety. Foreign medical facilities that have implemented lean thinking methods have significantly increased the number of their clients and at the same time achieved savings in costs and investments. They also noted a reduction in the number of errors in diagnosis and treatment at the level of tens of percent.

Research goal

The main goal of our research was to examine the interrelationships between the use of lean management principles and the hospital rating of hospitals in the Slovak Republic and to identify the influence of external and internal factors in this relationship. External factors are stakeholder pressures that can incite cost reduction initiatives. Our assumption takes into consideration the stakeholder theory, according to which relevant parties are the decisive factor in solving economic, social and other issues in healthcare (10). Internal factors represent efforts to reduce costs and waste from within hospitals by the employees themselves. This is a supportive climate in hospitals, which, according to Viinikainen (11), helps managers implement the principles of lean management and enables employees to gain a sense of co-responsibility for the results achieved. Based on the theoretical research of proven connections, we verify the following hypotheses:

H1: We assume that the use of lean principles in a healthcare facility is positively related to the rating of this facility.

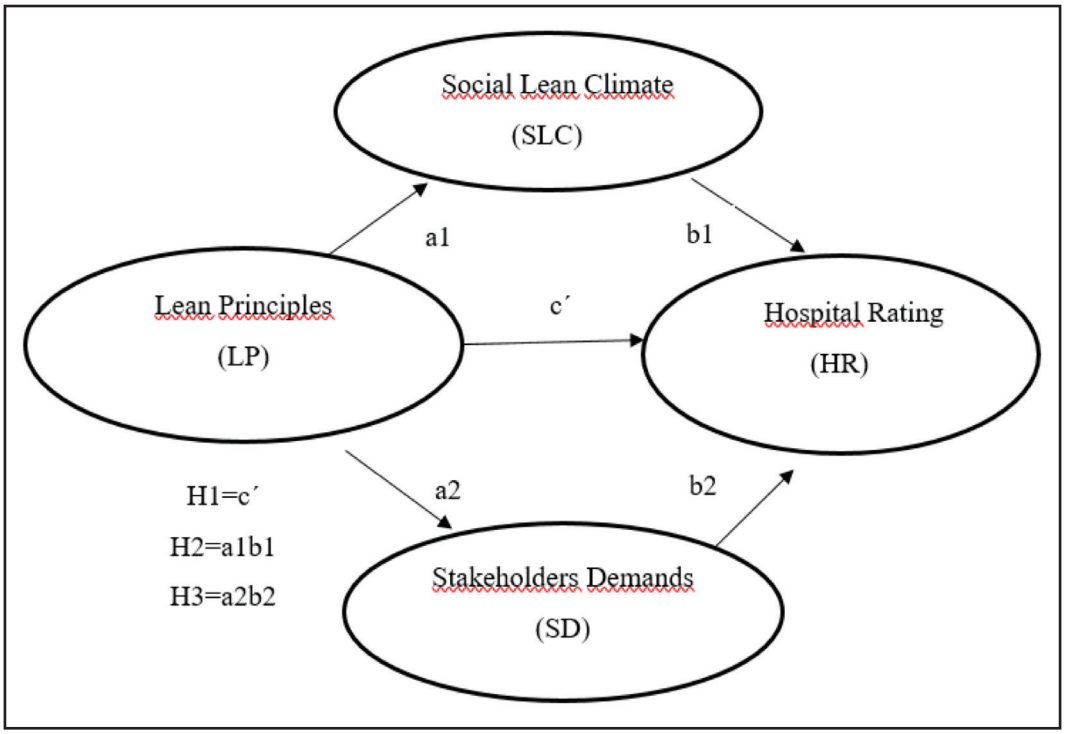
H2: We assume that the relationship between the use of lean principles in a healthcare facility and the rating of this facility is mediated by the pressure of stakeholder requirements.

H3: We assume that the relationship between the use of lean principles in a healthcare facility and the rating of this facility is mediated by the social lean climate.

Collection and methodology

Our research was conducted in the form of a questionnaire. The case study included 11 university hospitals and 33 general hospitals in Slovakia, which are evaluated annually by the Institute for Economic and Social Reforms (INEKO) using a set of defined indicators. Each hospital thus has an objective indicator of the quality of its activity, and based on the evaluation, it is in a certain place in the ranking. Hospital representatives who manage quality processes were approached. From each hospital, there were several respondents from managerial positions,

Figure 1 Theoretical study model



an average of five respondents from one hospital. In total, the sample consisted of 175 respondents from 35 hospitals. The survey took place in the year 2023, taking into account the evaluation of hospitals for the year 2022. Participants expressed their opinions on all variables on a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Individual variables are listed in Table 1.

Results

In the first step, we validated our theoretical model. All the standardized loadings are greater than 0.70. At the same time, the indicators of internal construct reliability meet the established requirements. Cronbach's alpha and composite reliability are in the range from 0.7 to 0.95 for all constructs. Rho_A is also satisfactory and, based on the theory, should be between Cronbach's alpha and CR. Using the average variance extracted (AVE) calculation, we verified the convergent validity, which was higher than 0.5 (Table 2).

To measure discriminant validity, we used the heterotrait-monotrait correlation ratio (HTMT), which indicates the degree to which the latent variable is empirically different from the other variables in the structural model (Table 3).

Since not all values are below 0.9 (12), we applied cross-loading in order to verify the loadings of indicators into latent variables. From the results of the analysis, we can conclude that, according to the application of cross-loading, a specific indicator has a higher loading on its own latent variable compared to other latent variables in the study. Based on the above, discriminant validity is established.

The SEM method examines the connections between individual variables. We verified our model's ability to predict these paths by calculating R2 (the value is higher than 0.1) and Q2 (the value is higher than 0) values, the obtained values of which indicate the predictive significance of the model and significance of paths.

The individual relationships and the verification of the hypotheses are shown in the following table.

Discussion

Healthcare worldwide is facing increasing pressure to improve quality, reduce costs and

Table 1 Latent variable categories and descriptors

Lean principles (LP)		**Social lean climate (SLC)**	
LP1	Identify customers and specify value added.	SC1	Employees have confidence in other employees' intentions and behavior.
LP2	Identify and map value streams.	SC2	Employees are skilled at collaborating with each other to diagnose and solve problems.
LP3	Create flow by eliminating waste.	SC3	Employees view themselves as partners in charting the direction of the organization.
LP4	Organize according to customer pull.	SC4	Employees share information and learn from one another.
LP5	Improve continuously.	SC5	Employees are aware and committed to the purpose and collective aspirations of the organization.
Stakeholder demands (SD) – pressures from stakeholders to implement lean practices		SC6	Employees apply knowledge from one area of the organization to solve problems and opportunities that arise in another.
SD1	Patients	SC7	Employees in the organization share a commonality of purpose and collective aspirations with others at work.
SD2	Government	SC8	Employees in this organization have relationships based on trust and reciprocal faith.
SD3	Employees	SC9	Employees interact and exchange ideas with people from different areas of the organization.
SD4	NGOs/Society	SC10	Employees interact with customers, suppliers, partners, etc., to develop solutions.
SD5	Others		
Hospital Rating (HR)			
HR1	Quality	HR4	Patient satisfaction
HR2	Surgical experience of doctors	HR5	Economic management
HR3	The difficulty of patient diagnoses	HR6	Transparency
HR3	The difficulty of patient diagnoses	HR6	Transparency

For data analysis, we used partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.3 software.

increase efficiency. This is why in recent years there have been efforts to implement lean management in the healthcare sector as well. Hospitals in Slovakia are evaluated by a very complex and sophisticated evaluation system through indicators of the quality of provided services based on e.g., the number of performed surgeries, the difficulty of diagnoses, patient satisfaction, economic management and transparency. This variable was the dependent variable in our

Table 2 Reliability and validity of latent variables

Variables	Cronbach's Alpha	rho_A	CR	AVE
LP	0.741	0.759	0.837	0.563
HR	0.842	0.898	0.892	0.676
SLC	0.885	0.912	0.929	0.814
SD	0.898	0.907	0.916	0.524

Notes: LP= Lean principles, HR= Hospital Rating, SLC= Social lean climate, SD= Stakeholder demands

study. We investigated whether there are connections between the obtained hospital rating and lean management principles and whether this connection is mediated by other external and internal factors.

The hypothesis of a direct effect between the use of lean principles and hospital rating was confirmed ($\beta = 0.356$; $\beta = 0.567$, $p=0.000$). In accordance with other conducted studies (13), (7), (14) that also took place in hospitals in Slovakia, the influence of the use of lean management principles on the functioning of hospitals is obvious. This is primarily because this tool allows us to identify waste in processes, map value streams and make them more efficient. The study also showed that the overall effect between the use of lean principles and the hospital rating was higher ($\beta = 0.826$; $p=0.000$) when the variables stakeholder demands and social lean climate were included as mediators of this relationship. However, the indirect effect is much higher for the variable stakeholder demands ($\beta = 0.470$; $p=0.000$) than for the variable social lean climate ($\beta = 0.291$; $p=0.000$). Both are statistically significant, and thus Hypotheses 2 and 3 are confirmed. In Slovak conditions, there still seems to be more pressure to improve quality from various included parties compared to pressure from within the hospitals. Although the employee climate, which would lead to higher efficiency of hospital processes, mediates the relationship between lean principles and the hospital rating, the mediation is not complete. The social lean climate's contribution to the overall effect is only 35 percent. The recommendation for healthcare facilities when implementing lean management, which is essentially a project for a change in organization and represents a bottom-up approach to innovation, also reflects this area. Such an approach is not forced, it allows the creativity and potential of individuals to be used, and it also uses the effective policy processes that exist in every organization. The initiator of the change is part of the implementation of the change, therefore the momentum effect is not lost. The change in this case does not need to be laboriously justified and "sold" within the organization to overcome resistance to something new. Modern hubs inspire other individuals.

Conclusion

In the Slovak Republic and abroad, the current healthcare industry is struggling with many problems related to the constant widening of

Table 3 Discriminant validity - HTMT

Heterotrait - Monotrait Ratio (HTMT)				
Variables	LP	HR	SLC	SD
LP				
HR	0.623			
SLC	0.884	0.644		
SD	0.689	0.971	0.740	

Notes: LP= Lean principles, HR= Hospital Rating, SLC= Social lean climate, SD= Stakeholder demands

Table 4 Path coefficients, total effects results, direct and indirect effects results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
Mediation via SD					
LP -> HR (total effect)	0.826	0.827	0.017	55.732	0.000
LP -> HR (direct effect)	0.356	0.358	0.062	4.172	0.000
LP -> SD -> HR (indirect effect)	0.470	0.472	0.053	12.065	0.000
LP -> SD	0.896	0.898	0.012	82.868	0.000
SD -> HR	0.644	0.646	0.058	11.608	0.000
Mediation via SLC					
LP -> HR (total effect)	0.826	0.828	0.016	55.734	0.000
LP -> HR (direct effect)	0.567	0.568	0.057	9.890	0.000
LP -> SLC-> HR (indirect effect)	0.291	0.290	0.063	4.654	0.000
LP -> SLC	0.625	0.626	0.061	10.187	0.000
SLC -> HR	0.907	0.908	0.011	83.499	0.000

Notes: LP= Lean principles, HR= Hospital Rating, SLC= Social lean climate, SD= Stakeholder demands

the gap between financial possibilities and the demands of society. System measures are often only partial and are influenced by political factors. Therefore, it is advisable to focus on solutions that are often simple with a significant and, above all, sustainable benefit for the medical facility that increase the efficiency of its processes. One highly functional tool in industry is lean management. It is gradually reaching the healthcare sector, and the results of our research show that it has a positive effect on improving the quality of hospitals.

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Cyberbullying and Prevention

T. Hardova (Tatiana Hardova)[1,2], D. Barkasi (Daniela Barkasi)[3]

Original Article

[1] St. Elizabeth University of Health and Social Sciences, Bratislava, Slovakia.
[2] Headquarters of Work, Social Affairs and Family Bratislava, Slovakia.
[3] St. Elizabeth University of Health and Social Sciences, Bratislava, Institute of bl. M. D. Trcka Michalovce, Slovakia.

E-mail address:

hardova.tatiana@gmail.com

Reprint address:

Tatiana Hardová
Ulica na sídlisku 360/54
076 14 Michaľany

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Reviewers:

Johnson Nzau Mavole
Catholic university of Eastern Africa, Nairobi, KE
Jirina Kafkova
MSF, Freetown, SL

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Abstract:

Introduction: Internet addiction increased unnaturally after the Covid-19 pandemic due to the development of the global situation where online teaching became the preference. This was not only true in Slovakia, but around the world. Bullying happens in every school, and it goes hand in hand with cyberbullying. Therefore, it is necessary to eliminate them with prevention.

Research aim and objectives: In our research, we approached 158 second grade pupils from two primary schools. The aim of the research was to identify whether girls or boys spend more time on the Internet, how often they are online, whether they have encountered cyberbullying, and what kind of cyberbullying prevention has been implemented in elementary schools.

Methods: In our research, we gathered information in the form of a self-constructed questionnaire.

Results: Through our analysis we came to the conclusion that girls spend more time in the online space (53.16%) compared

to boys. The occurrence of cyberbullying has increased in the recent period, which was also confirmed by 56.96% of respondents. The specific situations that we had the opportunity to encounter were solved by the primary school itself with the help of experts. Cyberbullying prevention alone is insufficient in primary schools, but it would be advisable to repeat it more often in order to eliminate bullying.

Conclusion: Cyberbullying in primary schools is increasing with the development of information and communication technology. It is advisable to begin addressing the issue of the increased occurrence of cyberbullying at an earlier age and increase prevention. It is also advisable to increase media literacy in Slovakia.

Biography of the first author

I completed my 2nd degree university studies at the University of Health and Social Work at St. Elizabeth in Bratislava in 2018. I later took a rigorous exam in the social work field of study in 2021. I have been a doctoral student since last year. I participate in the organization of scholarly events. I actively participate in multidisciplinary meetings and multidisciplinary training, which are also part of my work as the Coordinator of the Protection of Children from Violence within the framework of the national project "Support for the Protection of Children from Violence", which is carried out by the Central Office of Labour, Social Affairs and Family.

Introduction

"The Internet reflects and amplifies the best and worst of human nature. The Internet was built for adults, but it is increasingly being used by children, with digital technologies increasingly influencing their lives and futures. Our job is to reduce the damage and expand the opportunities brought about by digital technologies."

Anthony Lake, former Executive Director of UNICEF

According to a report from the World Health Organization (WHO), information and communication technologies have an impact on how children feel, think, behave and learn. It is already generally known that the perception of some kinds of digital content can have a negative impact on emotional, physical, mental, social, or moral development. The younger an individual is, the less responsible they are. In addition, their cognitive structure is not yet sufficiently formed, they have immature emotions and they do not think about the consequences of their own actions at all. Nowadays, children participate in the digital space regardless of age, health, gender, culture, ethnicity or social criteria. Cyberspace contains many opportunities with many risks, which we can group into the categories of illegal content, illegal behavior, age-inappropriate content and inappropriate contacts. Digital technologies not only force children to be educated, but parents and tutors as well, among others, creating pressure to use the acquired information in order to utilize it responsibly and within the scope of morality, age appropriateness and human rights. The progress of changes in the online space is quite unpredictable, making the process of education and prevention more difficult. In Slovakia, among other things, we have created the so-called National Concept for the Protection of Children in the Digital Space, which will be developed until 2025 (1).

Cyberbullying and its prevention

Cyberbullying in the school environment is also an effect of the modernization of bullying. According to "Directive no. 36/2018 on the prevention and solution of children and pupils bullying in schools and school facilities" issued by the Ministry of Education, Science, Research and Sport of the Slovak Republic, cyberbullying is characterized as a direct form of bullying that involves the misuse of information and communication technologies (phone, tablet, Internet, social networks) with the intention to threaten, harm or intimidate in connection with another form of bullying. The most frequent signs of cyberbullying are:

- social or psychological superiority (without the need for physical advantage),
- the activity of the aggressor is often anonymous,
- during the attack itself, the aggressor does not have to be in physical contact with the victim,
- with information and communication technologies, the attacker does not have the opportunity to see the emotional reaction of the victim during the attack (given the anonymity and withdrawal),
- the spread of attacks is faster via the Internet,
- the attack is accessible to a large number of people,
- the aggressor can carry out the attack from anywhere,
- the attack may happen over a longer period,
- the victim may not immediately learn about the attack,
- identification of the aggressor by the victim may not occur,
- the publication of information, photographs, video recordings and their removal may not be successful.

Bullying itself can fulfill the factual essence of a criminal act or misdemeanor (so-called criminal liability) (2, 3).

Nowadays, a child's life is hard to imagine without the use of information and communication technologies, whether it is for education or leisure activities. The help and protection of a child's rights mainly depends on the caregivers. It is only by realizing the threat conveyed by the Internet and cyberspace that we can possibly prevent the occurrence of this moral crime (4).

The process of bullying prevention in the educational process and addressing the bullying of children and pupils in schools and school facilities takes place during teaching, content-focused activities, didactics of subjects and cross-curricular topics, which are: personal and social development; media and multicultural education; protection of life and health; education and training on human rights, citizenship, marriage and parenthood; fighting against extremism; and various competitions, games, lectures and discussions organized by the school or other relevant entity (5). A significant role is played by school management and its ability to share knowledge and best practices in the entire educational process (6).

Research goal

The research group consisted of primary school students, and we specifically focused on the second grade for the reasons of prevention in those schools. We tackled sexting and cyberbullying prevention. 158 second grade respondents from two primary schools took part in our research. The aim of the research was to identify differences in the ways of Internet use from the points of view of gender, the frequency of online space usage and experience with cyberbullying. We also paid attention to the prevention of cyberbullying in primary schools.

Collection and methodology

Our research was carried out with a sample of students from two different primary schools. Out of the total number of pupils, female pupils predominated in the group (84) at 53.16%, compared to male pupils (68) at 46.84%. All of the interviewees had already encountered information and communication technologies. Through the analysis we discovered that girls spend time on a mobile phone more often than on any other device, with the total number of 76 (63.84%) compared to boys where the total number was 56 (38.08%). Data collection took place in the months of May and June 2023. We compared our results with other findings while investigating if there has been a failure in prevention.

Results

We assumed that not all students from the respondents had encountered cyberbullying. In our research, we did not confirm the given findings of the hypothesis. The reason for using the Internet is education at primary schools, which in our case is of significant importance with the assumption of Internet addiction advancement. The age category of the respondents was from 10 to 15 years. All students answered that they spend their free time on the Internet every day. One hour of participation in the online space per day occurred with 37.97% of respondents, which accounted for 60 pupils. Pupils who go online to spend their free time as well as to study spend more than two hours per day online, and in our study this amounted to 98 students or 62.03%. In addition, 76.58% of respondents, a total number of 121, confirmed experience with social networks, watching videos, playing games or

surfing the Internet on a daily basis. From these findings, we assume Internet addiction is already emerging. Our respondents, who came from two different primary schools, have encountered cyberbullying. Cyberbullying was confirmed by 98 students (56.96%) in the age range of 10-15 years. 60 students (37.97%) in the age group of 13-15 years had come across sexting. We chose these schools for our research because it was necessary to take preventive measures there in the given situation.

Discussion

During their most intensive growth period, children spend most of their time in primary schools, secondary schools, vocational schools and many of them also in universities preparing for their future profession. This is the period when we can most influence the next generations when it comes to taking care of their health. Of course, children's health is one of the highest priorities, not only for the parents themselves, but also for the state and the entire social and healthcare system. Therefore, the topic of cyberspace is becoming more and more relevant (7). According to the research report EU Kids Online IV Slovakia (8), compared to our "smaller" number of respondents, we can confirm that all children use the Internet. 72% of children or teenagers are on the Internet every day, and in our research we had 100% daily online participation. The report results also confirm our findings that there is a higher amount of Internet use via mobile phone among girls (75%) compared to boys (69%); in our research there was a higher number of girls (53.16%) than boys (46.84%). At the same time, boys use a computer to connect to the Internet more frequently (51%) than girls (39%).

According to the research report EU Kids Online IV Slovakia, every fifth child or adolescent aged 9-17 spends more than 4 hours on the Internet during a school day (8).

According to the findings based on the concept of better protection of children in the digital space, it was discovered that up to 30% of respondents in the age range of 11 to 18 years in Slovakia have, for example, already received a request to send a nude photo of themselves. Self-sexting in the form of sending messages (full or partial nudity) was used by 16% of children or adolescents aged 11 to 18 (1).

Based on our research, it would be appropriate to enlighten students, teachers, parents and other professional multidisciplinary teams more about preventive and educational activities they can take part in and complete to help prevent negative consequences.

Conclusion

The growth in information and communication technologies is progressively related to both digital education and the negative impacts of cyberbullying. Among other things, the lack of information can, in the worst case, cause children to be prone to self-harm or other psychological destruction. Therefore, it is very important to pay more attention to protecting and helping children at an early school age, thus preventing potential interventions.

Prevention should be the priority in both the formal and informal education of children and students. A safer, more controllable cyberspace should be created, one where, in case of imminent danger, one can react efficiently. In Slovakia, we already have several options, experts, institutions and authorities that can be helpful in removing web content that spreads child pornography or other dangerous content.

Last but not least, it is important to focus on increasing the efficiency and success of dealing with cases of threats to children in the online space by considering the legislative, executive and jurisdictional frameworks.

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Economic Aspects of Prevention

A. Kovac (Andrej Kovac)[1,2], N. Jankelova (Nadezda Jankelova)[3], M. Mucska (Matej Mucska)[1], N. Jankelova (Nada Jankelova)[1,4]

Original Article

[1] Slovak Medical University in Bratislava, Faculty of Public Health, Bratislava, Slovakia.
[2] Educational, Scientific and Research Institute AGEL, NPO, Bratislava, Slovakia.
[3] University of Economics in Bratislava, Faculty of Business Management, Bratislava, Slovakia.
[4] Bratislava Bory Hospital, Slovakia.

E-mail address:

andrej.kovac@szu.sk

Reprint address:

Andrej Kovac
Limbova 12
833 03 Bratislava
Slovakia

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Reviewers:

Claus Muss
International Society of Applied Preventive Medicine i-gap, Vienna, Austria
Daniel J. West
University of Scranton, Department of Health Administration and Human Resources, USA

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Abstract:

Economic aspects of prevention refer to the costs and benefits associated with measures aimed at preventing various problems and risks. Prevention can include measures aimed at preventing disease, crime, harmful behavior, environmental problems and other areas. There are several important economic aspects of prevention: cost reduction, productivity gains, social and human benefits and long-term sustainability. It is important to realize that prevention requires initial investments and often its economic impact is not immediately visible. However, a long-term evaluation of costs and benefits shows that prevention can be an economically beneficial strategy that brings a large number of socioeconomic benefits for the individual and society as a whole.

Biography of the first author

He was born in Bratislava. He graduated in Andragogy and Public Health. Professionally, he focused on the field of further education of health workers. He worked in the academic field for many years. He currently works in the private sector of healthcare. He is professionally engaged in clinical testing coordination in healthcare facilities, science and research, and connecting academia with the private sphere in the field of healthcare. He also works as a university teacher.

Introduction

The provision of healthcare includes five basic activities: prevention, diagnostics, therapy, rehabilitation and palliative care. Disease prevention is an extremely important aspect of society that has major economic consequences. Prevention is often divided into three basic groups: primary, secondary and tertiary. Primary prevention is obstructing the onset of disease, and it is precisely this type of prevention and its economic aspects that we want to focus on in this work. However, primary prevention has an unpleasant feature. Its results are usually noticeable after a long time, perhaps after tens of years, which of course involves the problem of how it is perceived by society. Therefore, a good setup and good preparation for the setup of preventive activities is very important so that after several years we do not find we have not achieved the expected results. This type of healthcare, even though it is relatively undemanding, represents a certain economic burden. In secondary prevention, which is based on early diagnosis and therapy, we see the results relatively early and can evaluate them as the recovery of the patient or stabilization of their health.

Costs and benefits of prevention

The costs of healthcare are fairly high in almost all countries and range from 5 to 10 percent of the gross domestic product, which understandably burdens the state budget or the budget of specialized facilities such as health insurance companies. Therefore, it is best and most economical if the disease does not occur, and this is precisely the role of primary prevention. The forms of this primary prevention range from health education to preventive interventions. Chronic diseases cost the economy of the European Union 115 billion EUR or 0.8 percent of GDP. In the European Union, approximately 70 to 80 percent of annual healthcare is spent on the treatment of chronic diseases (1). This is also the reason why investments in health prevention can prove to be very beneficial and save precious public funds. Disease prevention can reduce treatment costs and enable patients to lead healthier and more productive lives. It can also reduce the rate of disability and the rate of unemployment, thus achieving a higher rate of employment, which can be reflected in economic stability. Disease prevention can also help to improve the productivity of the workforce because a healthy worker is less absent and less sick, which has a positive impact on economic performance. Health prevention can have a positive impact on social and environmental factors, which can have an overall positive impact on society. Barkasi (2017) claims that compared to the economic and social losses associated with the prevalence of civilization diseases, the costs of prevention and effective treatment of these diseases is significantly lower (2). Improved health also leads to a lower crime rate, a better quality of life and possibly to a reduction in environmental pollution. Investments in primary prevention are also beneficial from an economic point of view, as they contribute to a reduction of healthcare costs, an increase in work productivity and the improvement of social and environmental factors. We consider the benefits of prevention to be:

- reduced costs of treatment and increased productivity of the workforce, as prevention detects the disease before it occurs and takes effective measures to prevent it from occurring;
- improvement of the general health of the population will prevent the occurrence of diseases and may bring lower costs of treatment, save health insurance funds and is also beneficial for employees and employers by increasing productivity;
- illnesses and injuries lead to significant costs for the health sector, which can also be reduced by preventive activities; we will achieve lower costs for insurance contributions since healthy people need less healthcare, health insurance companies do not have to pay as much for medicines, hospitalizations and other treat-

ment procedures, thereby a reduction of public expenditure on the health of the population can be achieved;
- if people are healthier and more productive, they have fewer illnesses and injuries, that means fewer days spent off work, improving the performance of the workforce;
- improved health affects the quality of life of the population, people are happier, have more energy, and are more motivated to work and achieve their goals;
- improved health of the population can positively affect the country's economic indicators and thereby contribute to further economic growth.

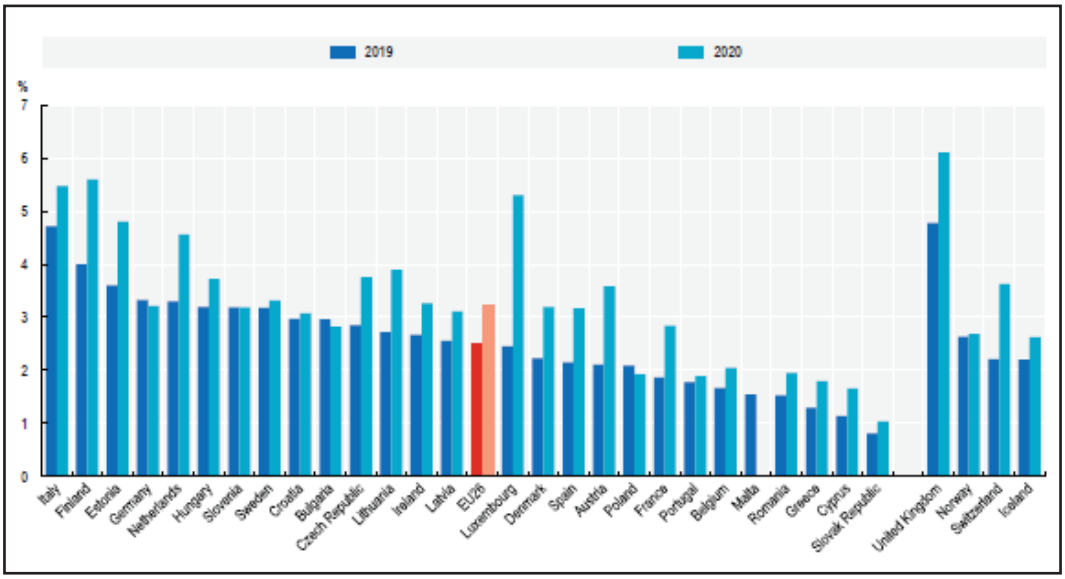
Comparisons of prevention in Slovakia and other EU countries

An international comparison of the costs of public health in 2019 and 2020 shows that Slovakia has a low health expenditure on prevention and appears almost at the bottom in the list of countries. The highest proportion of spending on prevention out of total healthcare costs is in countries such as Italy, Finland and Luxembourg, where this spending is at the level of 5 to 6 percent. In Slovakia, the share of prevention costs in total healthcare costs is roughly 1%, which is insufficient.

Prevention represents only a small share of the total expenditure on healthcare. Even after a strong one-off increase in 2020, which was mainly related to public health management during the COVID-19 pandemic (e.g., large-scale testing for the detection of the virus, pandemic surveillance and emergency coordination,), spending on preventive measures still represents only about 3% of total expenditure on healthcare (Fig. 1). Prevention serves mainly to obstruct the onset of disease. It also serves to detect diseases in their early stages, when they are still treatable. In Slovakia, preventive examinations and screening activities paid from public health insurance funds serve this purpose. An important condition for the success of preventive activities is the use of these activities by the population. Unfortunately, in many cases we encounter that preventive activities are not well received by the public and are not generally accepted. Citizens do not use the possibilities that preventive activities give them, whether in the field of public health or preventive activities carried out by medical facilities and medical workers. Preventive inspections are carried out in several fields and their contents and frequency are determined by legislation.

Preventive examinations of children and adolescents are traditionally the most popular in

Fig. 1 Share of prevention costs in total health spending, 2019-20



Source: OECD/European Union (2022), *Health at a Glance (3)*

Slovakia. In 2021, 864,137 preventive medical examinations of children and adolescents were performed, which represents 0.91 examinations per 1 person in the given age group. The development of the completion of these preventive examinations varies between 0.98 and 0.95 examinations per 1 person in the given age group.

The second most used are preventive examinations of the oral cavity by a dentist. In 2021, it was carried out in 2,350,482 inhabitants, which represents 0.45 examinations per 1 registered person in the given age group. It slightly decreased to 0.41 in 2020 due to the impact of the COVID-19 pandemic.

Gynecological preventive examinations were performed on 844,618 women, approximately 48 examinations per 100 women, including preventive examinations during pregnancy.

As for general practitioners for adults, the number of preventive examinations is relatively low, representing 811,657 people and around 35 examinations per 100 inhabitants in the given age group.

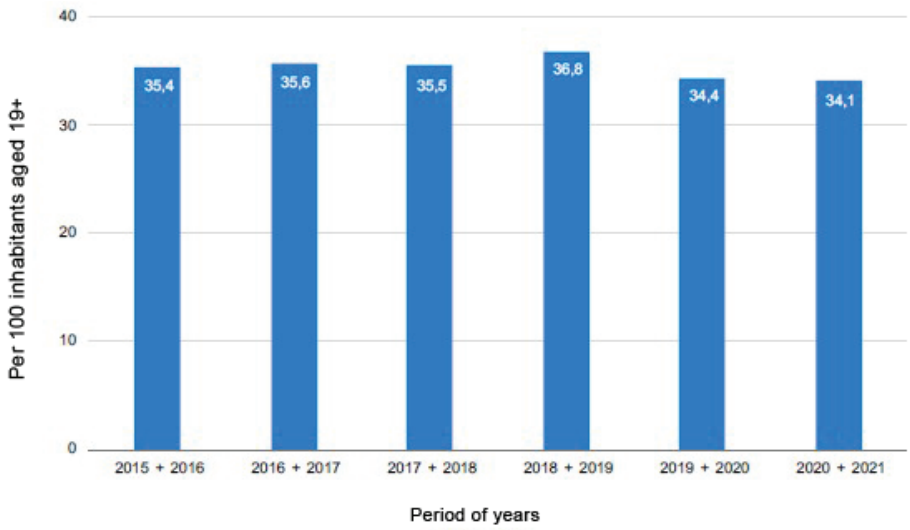
There are significantly lower numbers for preventive examinations by urologists and gastroenterologists. 62,430 urological preventive examinations and only 15,327 gastroenterological examinations were recorded (4).

These figures confirm that there are very few preventive examinations in Slovakia, and therefore one of the most important tasks for the future for all health authorities will be to increase the population's interest in prevention. In the health sector, more attention, time and energy should be devoted to the prevention of diseases, not only to the treatment of already existing diseases. There are countries where this area is more intensively addressed and it brings positive results through a lower morbidity rate (5).

Conclusion

What path should Slovakia take to improve the situation? It is necessary to radically increase the share of prevention costs in total health spending. We propose to increase funding by 0.5-1% per year up to at least a 4% share of total

Fig. 2 Development of the number of preventive examinations for adults[1)] (cumulative data for a two-year period)[2)]



1) The number includes preventive examinations of insured persons aged 19 and over in general practitioners clinics and preventive examinations of insured persons aged 19-26 in clinics for children and adolescents / pediatric clinics.

2) Since the periodicity of adult preventive examinations is set once every two years, the cumulative number of adult preventive examinations for the period of two consecutive years, recalculated by the average number of inhabitants aged 19+, was used to calculate the indicator "Number of adult preventive examinations (19+) per 100 inhabitants for the period of these two years.

Source: NCZI (2022)

health care expenditures. At the same time, the total expenditure on healthcare should rise to 8% of GDP. It is important to check the effectiveness of the methods used so far and to reevaluate the individual methods of primary prevention in terms of their effectiveness and impact on the Slovak population. That is, to increase the population's use of the benefits of prevention. In our opinion, the field of education fails the most in this because it starts very late. We think that health education should start with an individual subject in primary and secondary schools, perhaps even in kindergarten, so that children create healthy lifestyle habits on a daily basis. It is not only about acquiring knowledge about health, but primarily about acquiring healthy habits. We should also significantly increase participation in preventive examinations by economically stimulating residents to participate (as dentists have successfully done). We must modernize prevention methods and use marketing knowledge, mass media and social networks.

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Occurrence of Arterial Hypertension in Patients with sleep Apnoea Syndrome

M. Mucska (Matej Mucska)[1], A. Vyskoc (Andrej Vyskoc)[1,2], K. Dostalova (Katarina Dostalova)[3], S. Moricova (Stefania Moricova)[4]

Original Article

[1] Faculty of Public Health, Institute of Health Protection, Slovak Medical University, Bratislava, Slovakia.
[2] Educational, Scientific and Research Institute AGEL n. o., Bratislava, Slovakia.
[3] Faculty of Public Health, Department of Preventive and Clinical Medicine, Slovak Medical University, Bratislava, Slovakia.
[4] Faculty of Public Health, Institute of Occupational Health Service, Slovak Medical University, Bratislava, Slovakia.

E-mail address:

matej.mucska@szu.sk

Reprint address:

Matej Mucska
Limbova 12
833 03 Bratislava
Slovakia

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Reviewers:

Roberto Cauda
Institute of Infectious Diseases, Catholic University of the Sacred Heart, Rome, IT
Daria Kimuli
Catholic university of Eastern Africa, Nairobi, KE

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Abstract:

Introduction: Sleep apnoea syndrome (SAS) is a serious under-diagnosed chronic disease, which often coincides with arterial hypertension (AH). The U.S. Joint National Committee considers SAS to be the most common cause of secondary arterial hypertension.
Objective: To determine the incidence of arterial hypertension in patients diagnosed with SAS in an accredited sleep laboratory (ASL) in Bratislava in the years 2013-2022.
Methods: The monitored group consisted of 688 patients examined in an ASL in Bratislava who underwent an initial

examination (anamnesis, anthropometry, sleep questionnaire) and a diagnosis of sleep-disordered breathing (nocturnal polysomnography) in order to confirm or refute the diagnosis of OSAS.

Data collection also took place by using a copy of the patients' medical records (presence of AH). We used Microsoft Excel and statistical software SPSS, version 21.0 to process the obtained data. We considered the result to be statistically significant if $p \leq 0.05$.

Results: We demonstrated a statistically significant difference in the incidence of AH in patients with SAS compared to patients without SAS, i.e., there was a statistically significantly higher incidence of AH in patients with SAS compared to patients without SAS (39% vs. 17.5%; OR=3.0; $p<0.001$). We also demonstrated that the higher the AHI value in patients with SAS, the higher the incidence of AH ($p=0.002$; 95% CI 1.4 – 4.4). In addition, there was a 1.9 times higher risk of developing AH in patients with a moderate degree of SAS compared to patients with a mild degree of SAS ($p=0.014$) and up to a 2.8 times higher risk of developing AH in patients with a severe degree of SAS compared to patients with moderate SAS ($p<0.001$) regardless of BMI.

Conclusion: Due to the high coincidence (1/3) of arterial hypertension and sleep apnoea syndrome in the monitored group, it is necessary to focus on effective screening of SAS in high-risk persons as well as effective screening of SAS in persons with present AH.

Biography of the first author

In 2010, I completed the second degree of university education in the study program Public Health (PH), and in 2012, I took a rigorous exam in the study field of PH. In 2013, I defended my dissertation, and in 2018 I obtained a specialization in the specialized field of healthcare management and organization - Master of Public Health (MPH). Since July 2022 I have been acting as the head of the Institute of Health Protection at the Faculty of Public Health of the Slovak Medical University in Bratislava. Since November 2022, I have been acting as the vice-dean for educational activities at the Faculty of Public Health of the Slovak Medical University in Bratislava. I actively participate in domestic and foreign professional events. I participate in the pedagogical process, especially in the PH study program.

Introduction

Currently, the human population lives in deregulated environmental conditions that create the potential for an emergence and potentiation of several diseases of civilization. Thanks to massive scientific advancements, the state of knowledge in the field of disease prevention is vast; however, chronic diseases still represent a serious medical problem (1).

Chronic diseases are responsible for 41 million deaths annually, accounting for up to 74% of all deaths worldwide (2). Chronic diseases lead to premature mortality and worsening of disabilities. They represent a main cause of deterioration of the physical health of the population in all countries, which in turn has economic impacts. The biggest risk factor is human behavior based on an unhealthy lifestyle. The WHO claims that if the current situation is maintained, the annual mortality due to chronic diseases will increase to 55 million individuals per year by 2030 (3). Especially in low- and middle-income countries, chronic diseases account for up to ¾ of deaths, and approximately 13.5 million people die prematurely or before reaching the age of 70 (2). Currently, we can talk about a pandemic

of chronic diseases, which not only have serious health consequences for the individual, but also for the family and the community. It also presents a burden on the healthcare system, which represents a challenge for the 21st century in terms of ensuring adequate healthcare. Education itself also has its justified place in the care of people with chronic diseases. This activity is considered to be a lifelong activity aimed at increasing the level of knowledge about diseases and acquiring the necessary skills (4).

According to the International Classification of Sleep Disorders (5), sleep apnoea syndrome (SAS) is the most common sleep-related breathing disorder. It is estimated that the majority of patients in Slovakia are not diagnosed, which increases the risk of many acute or chronic consequences of untreated OSAS, namely cardio-metabolic complications (AH, ischemic heart disease, cardiac arrhythmias, type II DM, metabolic syndrome, etc.), as well as other known negative effects causing endocrine, ophthalmological, haematological, hepatological, nephrological and sexual modifications.

Methodology

The monitored group consisted of 688 patients who were examined in an ASL due to the presence of one or some of the following day or night symptoms of SAS (excessive daytime fatigue, snoring, feeling of suffocation, sleep pressure during normal activities, or microsleep when driving a motor vehicle, feeling of unrefreshing sleep). The data collection took place in the form of a transcript from the medical records of patients examined in the years 2013-2022 at an ASL in Bratislava. We focused on collecting the following data from patients' initial examinations (basic characteristics - gender, age, associated diseases - arterial hypertension), data from the nocturnal polysomnographic examination - SAS unconfirmed and SAS diagnosed (determination of severity based on the apnoea-hypopnoea index (AHI), (ICSD, 2013). We considered a patient to have AH if they received the diagnosis of AH, an ICD code listed in the medical documentation. We processed the obtained data in a database in the Microsoft Excel program and then statistically evaluated them in the SPSS program, version 22. We set the level of statistical significance at $p \leq 0.05$.

Results

The monitored group consisted of 688 patients, of which a significant part was men (n=623; 90.6%) and 65 (9.4%) were women. In our group, most of the examined men were in the age categories: 30 to 39 years - 184 men (29.5%), 40 to 49 years - 195 men (31.3%), and 50 to 59 years - 125 men (20.1%). Most of the examined women were in the 40-49-year-old age category, 13 women (20%), and the least were in the 20-24-year-old category, where only one woman (1.5%) was examined (Table 1).

From the monitored set of men (n=623), SAS was not confirmed in 87 men, and we con-

Table 1 Age structure of examined patients based on gender (n=688)

		MEN n= 623	**WOMEN** n= 65
		n (%)	n (%)
AGE CATEGORIES	20-24 years old	5 (0,8%)	1 (1,5%)
	25-29 years old	22 (3,5%)	3 (4,6%)
	30-39 years old	184 (29,5%)	12 (18,5%)
	40-49 years old	195 (31,3%)	13 (20%)
	50-59 years old	125 (20,1%)	12 (18,5%)
	60-65 years old	59 (9,5%)	12 (18,5%)
	65+ years old	33 (5,3%)	12 (18,5%)
	TOTAL (n=688)	**623**	**65**

Table 2 Absence or presence of SAS based on severity and gender (n=688)

		MEN n= 623	**WOMEN** n= 65
		n (%)	n (%)
severity of **SAS**	SAS not diagnosed	87 (14%)	16 (24,6%)
	mild degree of SAS	129 (20,7%)	20 (30,8%)
	moderate degree of SAS	127 (20,4%)	14 (21,5%)
	severe degree of SAS	280 (44,9%)	15 (23,1%)
	TOTAL (n=688)	**623**	**65**

Table 3 Set of patients diagnosed with SAS according to severity with present AH based on gender (n=228)

		MEN with SAS and AH n= 208	**WOMEN with SAS and AH** n= 20
		n (%)	n (%)
severity of **SAS**	mild degree of SAS	31 (14,9%)	5 (25%)
	moderate degree of SAS	46 (22,1%)	7 (35%)
	severe degree of SAS	131 (63%)	8 (40%)
	TOTAL (n=228)	**208**	**20**

firmed SAS in 536 men. Mild SAS was found in 129 men, moderate SAS in 127 men and severe SAS in 280 men.

From the monitored group of women (n=65), SAS was not confirmed in 16 women, and we confirmed SAS in 49 women. A mild degree of SAS was detected in 20 women, a moderate degree of SAS in 14 women and a severe degree of SAS in 15 women (Table 2).

From the total group of 688 patients, 228 patients (31.5%) were diagnosed with SAS and arterial hypertension, of which 208 were men and 20 were women. The age specificity of SAS (40 to 60 years old) was also confirmed in the group of patients diagnosed with SAS and with arterial hypertension, where the highest number of men were in the age group 40 to 49 years old - 57 men (27.4%), in the age group 50 to 59 years old - 60 men (28.8%) and in the age group 60 to 65 years old - 32 men (15.4%). The group of women diagnosed with SAS and with the presence of AH in the age group 40 to 49 years consisted of 4 women, the age group 50 to 59 years consisted of 4 women, the age group 60 to 65 years consisted of 4 women, and the age group 65 and over consisted of 8 women.

In the group of men diagnosed with SAS and with present AH, 31 men had a mild degree of SAS, 46 men had a moderate degree of SAS and 131 men had a severe degree of SAS. In the group of women diagnosed with SAS and with the presence of AH, 5 women had a mild degree of SAS, 7 women had a moderate degree of SAS and 8 women had a severe degree of SAS (Table 3).

In the group of patients diagnosed with SAS (n=585), we recorded 228 cases of arterial hypertension. In the group of patients with undiagnosed SAS (n=103), we recorded only 18 cases of arterial hypertension. We demonstrated a statistically significant difference in the incidence of AH in patients with SAS compared to patients without SAS, i.e., there was a statistically significantly higher incidence of AH in patients with SAS compared to patients without

SAS (39% vs. 17.5%; OR=3.0; p<0.001). Using multivariate logistic regression, we demonstrated that the severity of SAS based on AHI affects the presence or absence of AH. We found that the higher the AHI value in patients with SAS, the higher the incidence of AH (CI=1.4 – 4.4; p=0.002).

There were 228 patients in the group of patients diagnosed with SAS and AH - in the group of patients with a mild degree of SAS based on AHI (n=36), in the group with a moderate degree of SAS (n=53) and in the group with a severe degree of SAS (n=139).

We found a 1.9 times higher risk of developing AH in patients with a moderate degree of SAS compared to patients with a mild degree of SAS (p=0.014) and a 2.8 times higher risk of developing arterial hypertension in patients with a severe degree of SAS compared to patients with moderate SAS (p<0.001) regardless of BMI.

Discussion

Sleep apnoea syndrome is a serious chronic disease with an increasing trend of occurrence mainly in the productive part of the population, especially in men. Currently, it is known that SAS is a significant risk factor for the onset and development of many chronic diseases, e.g., arterial hypertension (6). Especially in patients with untreated sleep apnoea syndrome there are frequent pauses in breathing during sleep or too shallow breathing. These pathophysiological changes are characterized by a drop in blood pressure, especially in stage I non-REM sleep. In stage II non-REM sleep there is an increase in blood pressure values, and the most significant increase in blood pressure values is in stage III non-REM sleep, in the so-called hyperventilation phase. These pathophysiological changes caused by sleep-disordered breathing first lead to an increase in blood pressure values during sleep, and later these values also increase during the day. In our work, we confirmed a statistically significant difference in the occurrence of AH in patients with SAS compared to patients without SAS, i.e., there was a statistically significantly higher incidence of AH in patients with SAS compared to patients without SAS (39% vs. 17.5%; OR=3.0; p<0.001). The results of our work are in agreement with the results of many relevant professional studies (7, 8, 9). In their study, Floras et al. also found a higher incidence of arterial hypertension in patients diagnosed with SAS compared to the group of patients with undiagnosed SAS (88% vs. 12%) (7). Ahmad et al. report in their study that up to 83% of patients diagnosed with SAS also have present AH (8). Studies by Pascale et al. and Ahmad et al. report the prevalence of arterial hypertension in patients diagnosed with SAS at the level of 83%, while in the given study the diagnosis of SAS was defined by the presence of an AHI of more than 10 pauses in breathing per hour of sleep based on the result of nocturnal polysomnography, which is considered the gold standard in the diagnosis of sleep-disordered breathing. If the criteria of the last valid International Classification of Sleep Disorders (AHI > 5 pauses per hour of sleep) were used in the given study, the percentage of patients diagnosed with SAS and present AH would be significantly higher in the monitored group (9). With increasing AHI in patients with untreated SAS, i.e., with the increasing number of apnoea/hypopnoea episodes per hour of sleep, there are more frequent and more serious pathophysiological changes during sleep that negatively affect blood pressure values, i.e., lead to the development of arterial hypertension. The incidence of AH increased statistically significantly depending on the severity of SAS based on AHI (24.2% vs. 37.8% vs. 47.1%, p<0.001). The results of our work are in agreement with the results of several relevant studies (10, 11). In their study, Steinhorst et al. described the effect of the severity of SAS on the occurrence of AH, while the criterion for establishing the diagnosis of SAS was carrying out a polysomnography and having more than 10 pauses or shallow breaths per hour of sleep. They also found a statistically significant difference in the incidence of arterial hypertension in SAS patients with AHI>10 per hour of sleep compared to patients with AHI<10 per hour of sleep (60.6% vs. 39.4%, p=0.07). SAS patients with AHI>10 per hour of sleep had significantly higher systolic and diastolic blood pressure during the 24-hour measurement compared to patients with AHI<10 per hour of sleep (155,5 ± 19,6 mmHg vs. 145,5 ± 24,1 mmHg, p=0,02 ; 89± 13,7 mmHg vs. 87,2 ± 15,1 mmHg, p=0,04). In the given group of patients with SAS

and AH, there was a higher incidence of associated diseases, which was also reflected in the higher use of medications (10).

Conclusion

Due to the consumerist way of life with the distinct feature of an unhealthy lifestyle, which can be observed worldwide, there is a significant increase in many chronic diseases that require enormous financial costs for screening, diagnosis and, last but not least, lifelong pharmacological treatment with frequent incapacity for work, which negatively affects the quality of life of these patients.

From the point of view of public health, it is necessary to focus on the effective management of SAS (targeted screening, timely diagnosis, effective treatment and dispensary of patients), as the incidence of arterial hypertension increases with the increasing severity of SAS in untreated patients.

In addition to the most effective therapy for SAS of moderate severity or a severe degree, a positive pressure device - CPAP treatment, it is necessary to focus on non-pharmacological treatment of SAS, specifically by modifying one's lifestyle with a reduction in body weight. Many clinical studies with a long-term follow-up show that a complex modification of one's lifestyle based on modification of nutrition and eating habits, regular physical activity and cognitive-behavioral training or other types of psychological coaching have a definite positive effect on one's health and quality of life (12).

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A nurses eye-view on the Aspects of adult Patients' health Literacy

P. Snopek (Petr Snopek)[1,2], M. Popovicova (Maria Popovicova)[3], J. Babecka (Jozef Babecka)[4]

[1] Tomas Bata University in Zlin, Faculty of Humanities, Department of Health Care Sciences, Zlin, Czech Republic
[2] Tomas Bata Regional Hospital, Zlin, Czech Republic
[3] St. Elizabeth University of Health and Social Sciences, Bratislava
[4] Catholic University in Ruzomberok, Faculty of Health

Original Article

E-mail address:

snopek@utb.cz

Reprint address:

Petr Snopek
Tomas Bata University in Zlin
Faculty of Humanities
Stefanikova 5670
760 01 Zlín
Czech Republic

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Reviewers:

Johnson Nzau Mavole
Catholic university of Eastern Africa, Nairobi, KE
Zofia Szarota
WSB Academy / WSB University in Dabrowa Gornicza, PL

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Abstract:

Objective: Currently, health literacy is a hot topic worldwide. It is important for all age groups, for every individual and for society as a whole. Health literacy refers to the ability to obtain, understand and use information related to health and healthcare. The aim of the study was to identify problems related to health literacy that patients encounter in the context of their own healthcare and at the same time clarify the views of nurses on the education and health literacy of older patients.
Design: Qualitative research using the technique of semi-structured interviews.

Participants: Interviews were conducted with 10 senior healthcare workers (9 women, 1 man) from four healthcare facilities in the Czech Republic and Slovakia. The average age of the participants was 48 years (SD = 6.65, median 47, range 38 – 60).
Methods: The method of content analysis was used to analyze the obtained data. The obtained data were processed based on the analysis using open and thematic coding and categorization.
Results and conclusion: Barriers and strategies used by patients in managing their health were identified. These barriers and strategies were grouped into three themes and nine categories. Health literacy screening in a clinical care environment would not only be a beneficial tool in the care of elderly patients. Healthcare managers and senior healthcare workers should develop strategies to create environments and resources supportive of health literacy interventions.

Biography of the first author

Snopet Petr is an assistant professor at the Faculty of Humanities, Tomas Bata University in Zlin, Czech Republic. His professional interest is the quality and safety of nursing care as well as healthcare management. At the Faculty of Humanities, in addition to teaching, he also coordinates students' professional internships. He continues to maintain his professional erudition in clinical practice in the hospital. He likes to pass on his experience and knowledge to students, with whom he also likes to discuss the reality of theory and practice.

Introduction

Currently, health literacy is a discussed topic worldwide. It is important for all age groups, for every individual, and also for society as a whole. Health literacy refers to the ability to obtain, understand and use information related to health and healthcare. It is important for patients to have sufficient knowledge and skills to take proper care of their health and communicate effectively with healthcare professionals. If we are to be a healthy society, the health literacy of all citizens, not only health professionals, is essential at the highest possible level.

There are many explanations of how to understand the term health literacy. In the available professional literature, in addition to more extensive interpretations that contain a broader definition, you can also find short and simple definitions of the field of health literacy (1).

The World Health Organization (WHO) defines health literacy as cognitive and social skills that determine individuals' motivation and ability to access, understand and use information in such ways that promote and maintain good health (2).

In his publication, Bendl (2) states: "*If a person is to take responsibility for their own health and the health of their loved ones, they must have enough knowledge and skills to do so. Not so that they can replace professional health-care workers, but so that they can enter into a partnership with them.*"

A common feature of all definitions is a focus on the individual's ability to obtain, process and understand the health information and services necessary to make desirable health-related decisions (3). However, it also includes a focus on the ability of the management of healthcare organizations to work with information and make the right decisions (4).

Health literacy develops throughout life and, like most complex human competencies, is influenced by health status as well as demographic, socio-political, psychosocial and cultural factors. The benefits of health literacy therefore affect the whole range of life activities – home, work, society and culture (5).

Currently, the highest possible level of health literacy is supported not only by healthcare organizations but also by the management of other organizations and companies, as they are well aware that the prosperity and competitiveness of

a company is closely related to the mental and physical health of its employees.

According to data from the Ministry of Labour and Social Affairs of the Czech Republic (6), there are currently 2.132 million seniors over the age of 65 living in the Czech Republic (that is, approximately one fifth of the population of the Czech Republic). In 2030, there will be 2.4 million senior inhabitants and in 2050 even 3 million, which will be almost 30% of all people living in the Czech Republic. Previous research on health literacy in the elderly population clearly declares that the elderly, in addition to their deteriorating health, have difficulties affecting their ability to self-care. These include a high prevalence of cognitive impairment, including a significant decline in working memory and health literacy over time (7).

It is obvious that the most serious consequence of a patient's low health literacy can be death. Patients who do not have a good understanding of their medical condition, associated dietary restrictions, environmental triggers, and are not aware of how to properly take prescribed medications can suffer life-threatening consequences. Patients with a low level of health literacy are particularly at risk of negative outcomes.

Through education, healthcare professionals aim to influence the cognitive and affective attitudes, and above all, the behavior of the target groups in the desired direction.

Chronically ill people belong to those strata of the population that are dependent on the help of others (doctor, nurse, carer, family) or on the care of an institution (hospital, social services home, community). The course of chronic diseases is long-lasting, unpredictable, reduces the quality of life and requires extensive care. Chronic disease not only changes the life of the patient, but also that of their family by interfering in their physical, mental and social spheres (8).

Especially with chronic diseases, health literacy plays one of the key roles. Despite all efforts, the behavior of the population has not changed significantly. It is particularly evident, for example, in the eating habits of the population. A significant percentage of children and adults suffer from obesity.

The healthcare paradigm shift to patient-centered care established the patient's lived experience as the fundamental measure of quality of care. Two of the important evaluative dimensions of the patient experience are communication and education. Managers in healthcare play an important role by supporting employees in developing these skills in this area too (9).

Research objectives, methodology and data

The research was carried out in a qualitative form using the interview technique. Participation in the conducted research was completely voluntary. This article presents only some parts of the detected primary information, which are part of the entire complex of observed facts, data and information.

Semi-structured interviews were conducted with nurse managers at whose workplaces adult patients are hospitalized. Interviews were conducted with 10 participants (9 women, 1 man) from four healthcare facilities in the Czech Republic and Slovakia who also participate in education or educational meetings held at their workplaces as part of their managerial positions. The average age of the participants was 48 years (SD = 6.65, median 47, range 38 – 60). The average length of total clinical experience was 26.5 years (SD = 6.96, median 25.5, range 14 – 38). The interviews were conducted in the range of approximately 45-90 minutes. Through these interviews, nurses' opinions and experiences with patients' health literacy were ascertained. The battery of questions mainly concerned barriers to patients' health literacy, strategies for overcoming these barriers and specific motives for increasing patients' health literacy.

The method of content analysis was used to analyze the obtained data. Each nurse was assigned a protocol number. The obtained qualitative research survey data were processed on the basis of analysis, using open and thematic coding and categorization. Transcripts were repeatedly read, segmented and annotated in search of significant connections.

Understanding the data was ensured by a study of professional literature, theoretical and practical studies, as well as valuable consultation with colleagues. During the first readings, insight was gained into the issue itself, but gradually deeper connections and meanings were found that revealed new perspectives and insights.

Results and discussion

In this study, nurses' opinions on patients' health literacy were investigated. Barriers and strategies used by patients in managing their health were identified. These barriers and strategies have been grouped into the themes and categories below. Due to the scope of the study and the limited possibilities of presenting the obtained results, only selected identified topics and categories are presented below.

themes	categories
barriers	age education attitude
social sphere	family caregiver
	patient's family support media space
key information	key information caregiver

Age

The most frequent concept or barrier emphasized by study participants in the context of patients' health literacy was age.

"Due to the chronicity of the disease that is treated by us, it can be seen how patients with increasing age have a harder time understanding and remembering how to proceed in their own treatment."

"The font size on the package leaflet is small and unsuitable for elderly patients, especially those with visual impairments. Some don't want to look for glasses, so they don't re-read information they're not sure about, e.g., when applying anticoagulants."

"I have noticed that quite a lot of older patients are reluctant to accept changes in their long-term treatment."

Attitude

The participants believed that the care and education of elderly patients is difficult mainly due to a lack of understanding of why these patients adopt certain attitudes that prevent them from engaging in more intensive care of their own health. These attitudes generally contained these characteristics: a lack of interest in managing new strategies in relation to their current state of health, and a refusal to adapt and adjust to the new state of health.

"Sometimes I am not able to identify to what extent the patient understood what I was explaining to them."

"I am often aware of the general statement that the older a person is, the harder it is to learn new things. For example, patient's argument that they only went for an examination once a year, so why do they have to do it more often now?"

"Do you know how old I am? I do not matter anymore, I'm at the end of my journey."

"Sometimes it is quite a problem to convince some patients not to drink liquids for a certain period of time before surgery. After all, it's just a little water, it can't hurt."

"Nurse, I get myself some antibiotics here and there, but I'm not able to do any regularity and nothing has happened to me yet and I feel like it always works, so why shouldn't it work now?"

"I can never remember the name of the pain meds so when I'm out of them I don't want to go to the pharmacy and say I don't know what they're called so they don't think I don't remember anything anymore."

As in the study conducted by Kim and Oh (7), we found that some elderly patients showed a proactive approach to engaging in healthy, recommended behaviors and successful self-care. However, it is difficult to identify what causes the difference in the self-care approach of elderly patients. Understanding the reasons for certain attitudes could be a starting point for improving the health literacy of these patients.

Family, caregivers, support of the patient's loved ones

"In most cases, elderly patients come with their adult children. If they are required to make a decision or approve a treatment method, they have the opportunity to consult with their children directly. However, sometimes these relatives intensively enter into this process, which is then more challenging for us healthcare professionals."

"We often find ourselves educating the relative rather than the patient, which is neither correct nor ideal."

"I perceive certain problems in the implementation of care in the case of a more serious diagnosis, when a relative, who comes to the

doctor's office with the patient, is being educated. They want to support and help the patient, but they do not live with them in the same household and subsequently do not have enough space or time to repeatedly pass on information to the patient. It is then more appropriate to increase efforts and educate the patient repeatedly."

"The lack of medical professionals and the associated time options limit us in the scope of the necessary patient education."

In the above cases, the patients' relatives were perceived as their supporters. However, the reality is also such that elderly patients are a kind of mediators between healthcare professionals and family relatives, and the decision-making power rests with the relative and not the patient.

Key information

Summarizing or repeating key information was cited by participants as an essential part of patient education.

"It's so good that you tell us this information, but I really don't remember all of it. It's a shame I can't see very well, I could read it later."

"This brochure is very nice, but I would recommend making a short summary at the end so that I don't have to read everything."

"You said it all so well, but I don't exactly know what you said at the very beginning, can you quickly repeat it to my granddaughter?"

The study is limited by the so-called lower representativeness of the studied group. From the aspect of generalization of the results, the mentioned shortcoming would be solved by a selection of respondents throughout the territory of the Czech Republic and Slovakia, as well as by the design of the survey. Further interviews with other professionals involved in health care, as well as with the patients themselves, would likely shed light on our understanding of health literacy barriers and solutions. Although we initially focused on cognitive issues related to literacy, it was quite evident that they are inextricably linked with social, economic and cultural dimensions. For this reason, we realize that the results of the study and our final statements cannot be generalized and that they are valid only for the selected group of respondents and the research method used. We can therefore consider our study as partial, which can form a starting point for further implementation of quantitative and qualitative research on a larger group of respondents.

Conclusion

This study aimed to identify health literacy issues that patients encounter in their healthcare and at the same time to clarify nurses' perspectives on the education and health literacy of older patients in order to provide better and more effective care management to increase their health literacy.

Given the reported and unreported findings and the increasing numbers of the elderly population, there is a need to develop and implement systemic assistance and interventions specialized for older patients and their health care providers to improve clinical practice and patients' health literacy.

We believe that health literacy screening in a clinical care environment would be a beneficial tool, not only in the care of elderly patients. The benefits of improving health literacy include better healthcare decision-making, adherence to treatment guidelines, and thus improved health status, all of which should lead to cost savings for the healthcare system and improved patient and provider satisfaction. Creating awareness among healthcare professionals is an essential aspect. They should consider the different skill levels of their patients and adapt their information and communication strategies to meet individual patients' needs. As reported by Pitt et al. (10), previous research shows that health professionals who were aware of the concept of health literacy used more skills to improve patients' health literacy.

In clinical practice, nurses as healthcare professionals, in addition to being responsible for providing direct patient care, are also responsible for fulfilling their educational needs. Health care managers and senior employees should develop strategies to create environments and resources supportive of health literacy interventions.

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Social Support and selected preventable lifestyle Determinants in People with vertebrogenic Difficulties

K. Supolová (Katarina SupolovA)[1,2], D. Barkasi (Daniela Barkasi)[1,]
R. Barta (Richard Barta)[1]

[1] St. Elizabeth University of Health and Social Sciences, Bratislava, Slovakia.
[2] National Rehabilitation Center Kovacova, Slovakia.

Original Article

E-mail address:

supolova.katarina@gmail.com

Reprint address:

Katarina SupolovA
Bakossova 3E
974 01 Banska Bystrica
Slovakia

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Reviewers:

Michael Costello
University of Scranton school of education, USA
Gabriela Lezcano
University of California, San Francisco, USA

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Abstract:

Introduction: Up to 80% of the population has encountered back pain in some form in their life. Back pain is among the 5 most common reasons for hospitalization and is the main cause of sick leave for people over 45 years of age. This has significant consequences for the entire society.

Research aim and objectives: Our research included patients of the National Rehabilitation Center Kováčová who were undergoing active rehabilitation treatment due to vertebrogenic problems. All respondents had demonstrable structural changes in the area of the lumbar spine, and around 80% of respondents had already undergone one or more lumbar spine surgeries. Our goal was to determine the relationship between the mentioned difficulties and physical activity, weight as well as the perception of social support.

Methods: We used a self-constructed questionnaire focused

on selected socio-demographic data and identification of eating and exercise habits. In addition, we used a standardized questionnaire titled "the Multidimensional Scale of Perceived Social Support".

Results: The analysis confirms that overweight, obesity and a lack of physical activity are related to structural changes and increased persistence of back pain. Inadequate dietary measures and insufficient physical activity directly contribute to this. Social support has a positive effect on enduring and coping with this difficult situation.

Conclusion: Back pain affects almost our entire population. Therefore, it is important to address this issue, especially if prevention is possible by optimizing weight and doing adequate physical activity. We must also not forget those who are going through a difficult life period due to long-term pain and give them a helping hand and support.

Biography of the first author

I graduated from the Jessenius Faculty of Medicine at the Comenius University in Martin in 2012. I subsequently worked as a doctor at the KPAIM Children's Faculty Hospital. Since 2015, I have been working in physiatry, balneology and medical rehabilitation at the Kováčová National Rehabilitation Center. I passed the attestation exam in the given field in 2020. I am currently a doctoral student at VŠZaSP of St. Elizabeth. I regularly attend interdisciplinary conferences as an active participant.

Introduction

Spine disorders are one of the most frequently occurring diseases. Up to 80% of the population has encountered back pain in some form in their life. Non-specific back pain with no obvious cause can be hidden under vertebrogenic problems. This makes up 90-95% of all occurrences of back pain. Incorrect movement stereotypes and associated long-term and disproportionate overloading of the musculoskeletal system contribute to their formation. If this condition persists, structural changes including disc damage, a change in position and overload, and subsequent structural changes in the vertebrae may occur.

Preventable factors of back pain

Risk factors for back pain include individual (age, physical condition, weight), psychosocial (excessive stress, negative emotions, depressive moods) and professional causes (unilateral loading, load lifting). We can modify and change some of these risk factors through our efforts. Preventable lifestyle factors include overweight and obesity, as well as individual physical activity.

Obesity is a chronic, preventable and relapsing disease. As for the prevalence of overweight and obesity in European countries, it is at the level of up to 50% of the adult population. With the increasing trend of obesity, the number of its complications also increases. Mechanical complications are directly related to excessive weight and the subsequent increased load on the musculoskeletal system. This increases the load on the joints from the biomechanics point of view and leads to increased depreciation. However, as Fabryová (1) states, fat tissue is a metabolically active organ, thus coagulation and fibrinolysis disorders and systemic subclinical inflammation can occur.

At present, human **physical activity** is at a low level, which affects both physical and mental health. Movement itself has a preventive effect on many diseases. In its recommendation for physical activity and sedentary lifestyles, the WHO recommends 150-300 minutes of moderate-intensity aerobic physical activity per week for adults (2). Other authors recommend a certain number of steps per day, and some prefer a step cadence. However, as the WHO emphasizes, it is important to do at least some activity, because it is always better than not exercising at all. Regular physical activity not only affects physical health and well-being, but it also has a positive effect on the mental health of the individual.

Social support

As a result of difficulties in the physical area, there is also a change in the psychological area. Limitation caused by pain can incite changes at work, causing a person to stay at home or be constrained in movement due to accentuated discomfort. Thus the social status of the individual also changes and they have to learn to function in new conditions. Social support is helping a person cope with difficult and unfavorable life situations. Social support is about giving and receiving help. Žilová (3) distinguishes the following forms of social support: emotional support - based on empathy, informational support - providing information about a new life situation, and instrumental support - providing material assistance. Some types of social support can also be provided by the management of the facilities where the individual works (4). The higher the level of social support, the easier it is for a person to manage a difficult life situation, which also has a positive effect on mental well-being.

Community activities based on the joint efforts of its members for a healthy lifestyle are beneficial for their members in terms of strengthening physical and mental resistance. Thanks to professional leadership and long-term relationships, they provide their members with a base that can potentially improve the quality of life of individual community members and ease the burden, especially when it comes to primary care (5).

Research goal

Our goal was to highlight the relationship between physical activity and weight in people with vertebrogenic problems. We analyzed the BMI index, eating habits and the level of physical activity of people with demonstrable structural changes in the area of the lumbar spine. The chronification of pain leads to a change in the quality of life, which is why we investigated the perceived social support in these individuals.

Collection and methodology

Our research group consisted of patients of the National Rehabilitation Center who were hospitalized in the facility during the months of August-September 2022. Two questionnaires were used. The first one was self-constructed, focusing on selected socio-demographic data, identifying eating and exercise habits, as well as the BMI value. The second one was the standardized questionnaire titled the Multidimensional Scale of Perceived Social Support that was compiled by the authors Zimet, Dahlem and Farley (1988). These were patients with vertebrogenic problems in the area of the lumbar spine. There were 30 patients in total. There were 12 female respondents, which represents 40%. 18 respondents were male, i.e., 60%. In all our patients, there were structural changes in the area of the spinal vertebrae. In 6 patients, i.e., 20%, surgical treatment had not yet been indicated. However, the remaining 80% of respondents had already completed surgery in the area of the lumbar spine. More than half of all patients (56.7%) had already undergone one surgery. And 7 patients (23.3%) had already undergone 2 or more surgeries.

Results

Our hypothesis was that the relationship between higher weight and worse eating habits is related to vertebrogenic problems. As for eating habits, only 5 respondents (16.7%) followed a diet in order to reduce weight. 10 individuals tried to eat moderately. Up to 50% of all respondents did not follow any diet or limit their eating. When we look at the distribution of our probation group according to BMI index values, we note the following: None of the respondents suffered from malnutrition, and 9 people had a weight in the normal range, representing 30% of the participants. Almost half of our sample suffered from being overweight, specifically 13 participants, accounting for 43.4%. 6 people, that is 20%, had obesity of the first degree. 1 respondent suffered from obesity of the second and third degree. In total, around 70% of those interviewed were overweight or obese to varying degrees. When we look at the length of time the patients had suffered from pain, 9 participants (30%) had had pain for less than one year. 7 interviewees had had pain for one to five years (23.3%). 46.6%, i.e., 14 individuals, had suffered from pain for more than five years. Our respondents were divided into 3 categories based on age. There were 5 respondents aged 21-40, 11 respondents in the 41-60 age category and 14 respondents in the 61-80 age category. When we asked the participants how often they perform any form of physical activity, the answers were

as follows: Only 3 interviewees stated that they do not exercise or perform any physical activity at all. Almost half, i.e., 14 respondents (46.6%) admitted to occasionally doing physical activity. A total of 13 interviewees reported regular physical activity. Of these, 7 respondents (23.4%) indicated the frequency of physical activity as being one to two times a week. Regular exercise three to five times a week was reported by 20% of respondents, totaling 6 people. In the open question to specify which physical activity they were involved with, more than half, 18 participants (60%), mentioned walking. There were also interesting answers such as stretching, strength training, climbing and volleyball. When evaluating the effect of active rehabilitation treatment, 4 interviewees (13.4%) declared a decrease in their difficulties. 17 respondents (56.7%) described a reduction of difficulties, but they persisted at a lower intensity. 13 participants (43.3%) indicated only a partial reduction of the mentioned difficulties after completing the rehabilitation treatment.

Based on the evaluation of the social support questionnaire, the level of perceived social support was at a relatively high level. The minimum value was 18, and the maximum was 84. On average, the total level of perceived social support was at the level of 72.5. The perception of social support based on the duration of the difficulties was also interesting, where the highest social support was perceived by individuals who had suffered from pain for less than a year (79.8). However, when the pain had persisted for 1-5 years it dropped to 72.6, and when the pain had persisted for more than 5 years, there was a re-increase in the perception of social support to 74.9. When choosing the group from which the respondents perceived the highest level of social support, the first place was represented by family (6.3), followed by friends (5.95) and finally significant others (5.85). Regarding the level of perception of social support according to marital status, married people (76.4) had a significantly higher rate compared to widowed (65.1), single (59) and divorced people (49).

Discussion

Vertebrogenic problems largely contribute to a reduction of the quality of life. Our effort should be to prevent them as much as possible. Even if we do not influence psychosocial and occupational factors, we can work on our lifestyle in a way that we influence the weight and correct movement stereotypes through our efforts and adequate and correct physical activity.

Gúth (6) states that problems with the spine are the main cause of sick leave at work in people over 45 years of age. They represent one of the most common reasons for visiting a specialist, and among all patients coming to the rehabilitation clinic, up to 70% have problems with the spine. In our sample of participants, we can observe that problems with the spine do not exclude any age category, as some of the patients were in the age group from 21-40 years old. However, 83.3% were patients over 40 years old. 70% of our respondents were overweight or obese. Harag and Kozák (7) classify obesity as an individual risk factor, and obesity significantly contributes to chronic pain. That is why it is advisable to maintain an adequate weight, something that 50% of respondents from our group realized. In its recommendation for physical activity and sedentary lifestyles (2), the WHO suggests 150-300 minutes of moderate-intensity aerobic physical activity per week or at least 75-150 minutes of high-intensity activity per week for adults aged 18-64, as well as strengthening the main muscle groups 2x per week (WHO guidelines on physical activity and sedentary behavior, 2020). One of the most well-known physical activity recommendations is 10,000 steps a day. However, as stated by Tudor-Locke et al. (8), this threshold is low for children and adolescents, while on the contrary, high for older individuals. Different countries also have different recommendations. They start at 3,000 steps for a sedentary lifestyle and go to 11,000 for an active person. Regarding the number of steps, the authors recommend: basal activity 2500 steps/day, limited activity 2500-4999 steps/day, low activity 5000-7499 steps/day, adequate (more or less) activity 7500-9999 steps/day, active individuals 10,000-12499 steps/day, and very active individuals >12500 steps/day. However, they also emphasize walking intensity and step cadence, where the limit of 100 steps per minute is a guideline for medium intensity walking. Among our respondents, 46.6% admitted to performing occasional physical activity, and another 23.4% moved regularly but with insufficient intensity. Only 20% of our

participants met the criteria of regular physical activity 3-5 times a week. What is encouraging is that around 60% of the respondents mentioned walking as their main physical activity, which complies with the recommendation of the authors of Tudor-Locke et al. (8). Rapčan and Martuliak (9) report a confirmed connection between obesity and radicular pain when an anatomical change is found by examination. It is also certain that obesity significantly affects the treatment and reduces the chances of good results. Among our respondents, of whom around 70 were overweight and obese, we can observe a relatively high percentage, 43.3%, who reported only a partial effect of active rehabilitation treatment.

Levická (10) highlights the importance of social support with regard to health conditions when she recommends that members of the client's/patient's social network be included in complex care, as it enhances coping with stressful situations. We can observe that despite the high percentage of participants who had suffered from chronic pain for more than 5 years (46.7%), their perception of social support is at a high level (74.9).

Conclusion

Vertebrogenic problems greatly change a person's quality of life. Quality of life is one of the indicators of a patient's experience and perception of the disease (11). The connection between structural changes of the spine and obesity is evident. It is therefore necessary to maintain a healthy and active lifestyle, as the WHO has been calling for in recent years. This applies not only to the young generation, but to individuals of every age. Weight reduction, adequate physical activity and a social network formed by our loved ones and friends will not only improve our physical condition, but our mental condition as well. Our reward will not only be the reduction or disappearance of back pain, but also a good feeling that we ourselves are contributing positively to our own health.

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Challenges for healthcare Managers in 2023

V. Vozar (Vladimir Vozar)[1,2], N. Jankelova (Nadezda Jankelova)[1], M. Belovicova (Maria Belovicova)[1], N. Jankelova (Nada Jankelova)[1,4], A. Kovac (Andrej Kovac)[1,5]

Original Article

[1] Faculty of Public Health, Slovak Medical University, Bratislava, Slovakia.
[2] Railway Hospital and Polyclinic. Doctor in the Orthopedic Department, Bratislava, Slovakia.
[3] Faculty of Business Management, Economic University Bratislava, Slovakia.
[4] Bratislava Bory Hospital, Bratislava, Slovakia.
[5] Educational, Scientific and Research Institute AGEL, NPO, Bratislava, Slovakia.

E-mail address:

vozar.v@gmail.com

Reprint address:

Vladimir Vozar
Stromová 54
831 01 Bratislava
Slovakia

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Reviewers:

Tadeusz Bak
Institute of Economics and Management PWSTE Jaroslaw, PL
Daniel J. West
University of Scranton, Department of Health Administration and Human Resources, USA

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Abstract:

Introduction: Managers in the field of healthcare face many challenges that are specific to this area and are caused by the dynamic and constantly changing healthcare environment.
Research sample and research objective: The main research objective was to evaluate significant aspects of financing and organizing healthcare systems, summarize assumptions for the successful functioning of a healthcare system, assess factors influencing healthcare spending, and predict the challenges that healthcare managers will face in 2023 at both the micro (individual healthcare facilities) and macro (healthcare system in Slovakia) levels. The research sample was selected by deliberate selection and consisted of 109 respondents: healthcare

managers (n=16), experts from the field of health management (n=15), experts from the field of human resources (n=19), directors of health facilities (n=10), medical (n=28) and paramedical staff (n=21).
Methods: Statistical testing was carried out using the methods of inferential statistics: the independent samples t-test was used to compare mean scores between two groups (RQ1 and RQ2) and a one-way analysis of variance (ANOVA) to compare mean scores among three groups (RQ 3).
Results: We found out there are no differences in the respondents' opinions on the challenges for healthcare managers in 2023 based on their job titles, the type of health facility in which they work or according to the length of practice.
Conclusion: According to the respondents, the most current trends and challenges for Slovak healthcare are: the need for qualified medical personnel, a focus on retaining employees and solving the growing costs of healthcare.

Biography of the first author

In 2004, I finished my studies at the Faculty of Medicine, Comenius University, Bratislava. In 2013 at the Slovak Medical University, Bratislava in the Department of Trauma Surgery, I conducted the Specialization Exam on 21.10. 2013. In the period 2012-2014, I was in postgraduate study in surgical science at The University of Edinburgh, UK. In 2020, I obtained the title of Public Health Administration/ MHA at St. Elisabeth University of Health Care and Social Work and at the University Institute of Economic and Legal Sciences the title of Master of Business Administration.

In the period 2006-2009, I worked at the Faculty Hospital in Nitra. From 2009-2011 I worked at the University Hospital of Wales as a doctor in the Department of Orthopedics and Traumatology (Clinical Fellow Trauma and Orthopedic Department, SpR) and as a doctor in the Department of Emergency Medicine (Clinical Fellow Accident and Emergency Department, Locum SpR). Between 2011-2012 I was employed at Norfolk and Norwich University Hospital as a doctor in the Department of Orthopedics and Traumatology (Clinical Fellow Trauma and Orthopedic Department, SpR). Next, until 2014, I worked at the Hospital and Polyclinic of Saint Luke in Galanta as a doctor in the Department of Trauma Surgery and Orthopedics and as a Chief Physician in the Central Patient Intake Department (from 01.01.2014). Until 2015, I worked at Uherské Hradiště Hospital, JSC as Deputy Head of the Trauma Department. In the period 2015-2016, I worked as a doctor in the Department of Trauma Surgery SZU UNB.

Since 2016, I have been working at the Hospital with Polyclinic Trnavské mýto as a doctor in the Orthopedic Department. In 2023, I finished my rigorous work at the Faculty of Public Health, Slovak Medical, Bratislava.

Introduction

The qualification of managers in terms of management skills is one of the most important factors in the continuous success of each organization, and utilizing such skills can have a positive contribution to the effectiveness of the organization while improving the performance of the employees in line with the objectives and goals of the organization (1).

In the field of healthcare, managers face many challenges that are unique to this field. These challenges are caused by a dynamic healthcare environment that is constantly changing. Individual challenges are diverse and include changes in the demographic makeup of the population, technological improvements, healthcare costs, staff shortages and many others.

Healthcare managers are responsible for managing and organizing the delivery of healthcare in healthcare facilities that is critical to the health and well-being of patients. We highlight some of the biggest challenges facing healthcare managers.

The first and basic challenge for healthcare managers is to ensure quality and safe healthcare. Quality assurance in healthcare encompasses various aspects, including protecting patients from harm, optimizing treatment, minimizing the risk of infection and reducing healthcare errors (2).

Managers must create and implement quality assurance systems, monitor the performance of healthcare workers and continuously improve healthcare delivery processes.

Financing healthcare facilities is a complex matter that often presents a challenge to healthcare managers. Healthcare facilities must manage the rising costs of healthcare technology, increasing healthcare demands and changes in healthcare legislation. Healthcare managers must effectively manage and plan the budget of healthcare facilities and look for new ways of financing to ensure the financial stability of the facility and ensure quality healthcare.

Another challenge is reducing healthcare costs. Healthcare costs are still high and rising in many countries. Managers must find ways to reduce costs without affecting the quality of healthcare. They can use different strategies such as optimizing healthcare delivery processes, minimizing waste, improving the management of medicines and materials and improving with the use of technology.

Technological progress in the field of healthcare has brought new possibilities in the diagnosis, treatment and monitoring of patients. Healthcare managers must be able to keep up with the rapid pace of technological development and implement new technologies that improve patient care. This also includes investments in electronic health records, telemedicine and mobile applications for patients.

Human resources are crucial for the provision of quality healthcare. Healthcare managers must be able to find, hire and retain qualified healthcare personnel. Medical personnel can be classified as a helping profession, which is characterized by close and regular contact with people in addition to helping other people. This work is called a mission because their primary goal is to help others (3). Furthermore, healthcare managers must ensure sufficient professional education and training for their employees to ensure the quality of healthcare delivery.

Research objective

The main research objective was to evaluate significant aspects of financing and organizing healthcare systems, summarize assumptions for the successful functioning of the healthcare system, assess factors influencing healthcare spending and predict the challenges that healthcare managers will face in 2023 at both the micro (individual healthcare facilities) and macro (healthcare system in Slovakia) levels. The partial goals were to find out the prerequisites for the successful functioning of the healthcare system, including opinions on actual and alternative ways of financing healthcare, material and human resources and new trends and challenges for the Slovak healthcare system, and to find out the differences in the opinions of the respondents based on their job position, according to the type of healthcare facility in which they work and according to the length of their work experience. To find out respondents' opinions on the challenges for healthcare managers in 2023, we set the following research questions:

RQ1: Are there differences in respondents' views on the challenges for healthcare managers in 2023 based on their job titles?

RQ2: Are there differences in respondents' opinions on the challenges for healthcare managers in 2023 according to the type of health facility in which they work?

RQ3: Are there differences in respondents' opinions on challenges for healthcare managers in 2023 according to the length of practice?

Research sample and methodology

To achieve the goal of the work, an analysis of available statistical sources was used, as well as trends reported in foreign professional magazines and a quantitative (questionnaire) survey.

The research sample was selected by deliberate selection and consisted of 109 respondents: healthcare managers (n=16), experts from the field of health management (n=15), experts from the field of human resources (n=19), directors of health facilities (n=10), medical (n=28) and paramedical staff (n=21). According to the type of health facility, 45 respondents who work in a state health facility and 64 respondents who work in a non-state (private) health facility participated. According to the length of experience, 22 respondents with 0-5 years of experience and

Table 1 Average Likert scale score – respondents' answers (according to job title) to the question "How do you rate the importance of the following trends and challenges for Slovak healthcare?"

	Manager, Expert, Director	Medical, paramedical staff
Virtual and remote recruitment - remote interviews	3,23	2,57
Temporary personnel solutions - hiring employees for specific projects as needed	3,07	2,82
Focus on employee retention	4,53	4,43
Favoring employees over employers	2,93	2,61
Appropriate workplace safety measures related to potential future variants of COVID	3,87	4
Addressing rising healthcare costs	4,32	4
The need for qualified medical personnel	4,7	4,37
Expanding the use of telehealth (telemedicine) and virtual healthcare.	3,37	2,88
Protection against cyber attacks	3,18	2,24

36 respondents with 6-10 years of experience took part in the survey. The largest group of respondents were respondents with 11 or more years of experience. As a tool, we used a questionnaire of our own construction, which contained socio-demographic questions and questions related to the researched area. Answers to research questions were obtained using the methods of inferential statistics: the independent samples t-test was used to compare mean scores between two groups (RQ1 and RQ2) and a one-way analysis of variance (ANOVA) was used to compare mean scores among the three groups (RQ 3).

Results

Based on the answer to the items related to RQ1, the obtained results could not clearly confirm the existence of a difference in the respondents' opinions on the challenges for health care managers in 2023 based on their job position. Therefore, we used the T-test of independent samples ($t=-0.11127$; $p=0.456$). Since $p>0.05$ it can be confirmed that the result is not significant, so RQ1 can be answered that there are no differences in the respondents' opinions on the challenges for healthcare managers in 2023 based on their job titles.

According to the results, it is possible to observe different scores between the answers according to the type of medical facility. As with RQ1, we used the T-test of independent samples ($t= -0.07776$; $p=0.469$). Since $p>0.05$ it can be confirmed that the result is not significant, so RQ2 can be answered that there are no differences in the opinions of the respondents on the challenges for healthcare managers in 2023 according to the type of healthcare facility in which they work.

The obtained results in relation to RQ3 cannot clearly confirm the existence of a difference in respondents' opinions on the challenges for healthcare managers in 2023 according to the length of experience of the respondents. For this reason, we used a one-way analysis of variance (ANOVA) ($t= 0.32$; $p=0.729$). Since $p>0.05$ it can be confirmed that the difference is not significant, so RQ3 can be answered that there are no differences in respondents' opinions on challenges for healthcare managers in 2023 according to the length of practice.

Discussion

The achieved results show that, according to the respondents, the most important areas for the proper functioning of the healthcare system in

Table 2 Average Likert scale score – respondents' answers (by type of facility) to the question "How do you rate the importance of the following trends and challenges for Slovak healthcare?"

	State healthcare facility	Non-state (private) healthcare facility
Virtual and remote recruitment - remote interviews	3,53	3,26
Temporary personnel solutions - hiring employees for specific projects as needed	3,29	3,47
Focus on employee retention	4,49	4,15
Favoring employees over employers	3,18	3,89
Appropriate workplace safety measures related to potential future variants of COVID	3,45	4,63
Addressing rising healthcare costs	4,21	4,05
The need for qualified medical personnel	3,82	3,75
Expanding the use of telehealth (telemedicine) and virtual healthcare.	3,25	3,11
Protection against cyber attacks	3,09	2,12

Table 3 Average Likert scale score – respondents' answers (according to the length of practice) to the question "How do you rate the importance of the following trends and challenges for Slovak healthcare?"

	0-5 years	6-10 ears	11 years and more
Virtual and remote recruitment - remote interviews	4,3	3,56	2,08
Temporary personnel solutions - hiring employees for specific projects as needed	3,87	4,11	4,24
Focus on employee retention	4,48	3,66	3,12
Favoring employees over employers	3,96	3,88	4,69
Appropriate workplace safety measures related to potential future variants of COVID	3,85	3,08	4,29
Addressing rising healthcare costs	3,27	3,43	4,33
The need for qualified medical personnel	2,82	4,07	3,61
Expanding the use of telehealth (telemedicine) and virtual healthcare.	3,99	3,56	3,44
Protection against cyber attacks	3,57	3,63	2,81

Slovakia are: improving the health status of the population (individuals, families), protecting the population against health threats and providing affordable and fair care. The obtained results correspond to the premise of the World Health Organization (WHO) for a properly functioning health system (4) as well as to the views of Simoens and Scott (5), who consider the focus on improving the health status of the population and its protection against health threats neces-

sary to achieve a fully integrated health system.

According to the respondents, the most current trends and challenges for the Slovak healthcare industry are a need for qualified medical personnel, a focus on employee retention and a solution to the rising costs of healthcare. The obtained results can also be supported by the results of a study by Walden University (6), which pointed out that even before the COVID-19 health crisis hit, healthcare managers were trying to fulfil the demand for health workers. The shortage of qualified health personnel is only expected to increase, and the competition to recruit and retain health professionals and to fill vacancies in the health sector has been and will continue to be a major challenge for the management of health systems. Retaining employees is a big challenge for the healthcare industry. A similar opinion is presented by Sargent (7), who says that retaining employees requires prioritizing the fulfilment of work tasks by employees and improving organizational culture. On the one hand, companies offer educational programs, health and wellness packages, and career advancement opportunities. On the other hand, managers are retrained in the area of communication, and by improving the working environment they can increase the retention rate of employees.

Conclusion

The healthcare system in Slovakia is based on the universal principles of the availability of healthcare, mandatory health insurance, a basic healthcare package covered by public insurance and competitiveness of the insurance model, which enables selective contracting (contracting) of providers of health services and flexible pricing of health services care (8).

The most important areas for the proper functioning of the healthcare system in Slovakia are: improving the health status of the population (individuals, families), protecting the population against health threats and providing affordable and fair care. Regarding the importance of monitoring and ensuring the correct functioning of the segments for the correct functioning of the healthcare system in Slovakia, the following segments are the most important: quality provision of healthcare services, human resources in the healthcare sector and essential healthcare products and technologies. The results of the survey pointed to prerequisites that can help the successful functioning of the healthcare system in Slovakia: a pro-patient approach, financial management - ensuring sufficient funds for all types of provided care, and providing care through interdisciplinary providers (providing several types of care in one place).

In conclusion and on the basis of the obtained results, it can be stated that according to the respondents, the most current trends and challenges for Slovak healthcare are: a need for qualified medical personnel, a focus on retaining employees and solving the growing costs of healthcare.

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