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Social Pathology after Pandemia & Armed Conflicts: Abuse, Depression & other Psychosocial Disorders Importancy of legal Support to continue Vaccination

Original Articles

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Social Pathology after Pandemia & Armed Conflicts: Abuse, Depression & other Psychosocial Disorders Importancy of legal Support to continue Vaccination

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The current issue of Clinical Social Work and Health Intervention (6. 2002) is extraordinary, not only in topic but also in timing. (2.11) It also, reflects the topics of pandemics and covid, 2 major catastrophes, similar to that which emerged from Nos 1 and 2, as immediate reaction to 2 years of COVID epidemics augmented by at least 4 mino (Karabakh, Afghanistan, Yemen, Myanmar) and 1 major armed conflict in Ukraine. What is the impact of 2 catastrophes (which are simultaneous) to individual and community health not only on affected countries, but worldwide? At least 2 papers (M. Popovicova and J. Polonova) warrant on alcohol, tobacco and other substance misuse as a compensation of Post-trauma stress syndrome, and post-COVID psychosocial disorders and related social pathologies accompanied by depression directly from the UA, SK border and other borders overwhelmed with migrants of war; another 3 from the Federal Republic of Germany and Poland (R. Gottschalk, Al Trad, E.Z. Jarmoch *et al*.) again as well as Dixon and Shaum from the US focus on depression, anxiety and potentiation of those 2 syndromes called also (deadly synergy) (l-IO). Another 4 papers are more optimistic, showing legal responses of major EU and US courts, unequivocally calling for respect for humans rights; putting the right to health protection and public health interests; upgrading them in front of other HR issues (Sikuta et al., Costello, Abdulaziz Naji, Shahum et al.), Brussels, EU and Saudi experience show that law in alll 3 systems - constitutional, custom, Islamic and Christian values are concerning law protection not only on one ,, rail,, but also to one direction, protection of public and individual health.(4-9).

The last paper on electromagnetic field and its risk for various diseases including cancer, looks appropriate more to the issue no. 4 or 5 of previous CSW. However, there is no better time to open the question on the possibility to use chemical, nuclear and other mass destruction measures, that current war in Eastern Europe. We hope, that the next issue will have no papers related to individual or public health measurements against nuclear or biological/chemical weapons, and will be better oriented, for example, for countries - after war related destruction of health management; staff shortage due to life losses; health services rehabilitation; reconstruction of the healthcare systems and infrastructure; medication and vaccine supplies; education of the next HCW and other health and medical staff. Hopefully...

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References

1. Maria Popovicova, Jana Sulcova, Richard Barta in: Alcoholism – Epidemic of the Current Times after COVID-19 Pandemic (Letter to the Editor), Clinical Social Work and Health Intervention, No.6, Vol 13, 2022.
2. Andrea Shahum, Catherine Mulama, Peter Vasko, Thomas Rusnak, Igor Kmit, Monika Gulasova, Marek Stachon, Daniela Giertliova, Marian Karvaj, Miroslava Bednarikova, Daniela Barkasi, Daniela Hennel, Marian Bakos, Eva Haluskova, Pavel Bryndzak, Bozena Igliarova, Marketa Vladarova, Anna Paulovicova, Emilia Vrankova, Frantisek Radi, Monika Katunska, Veronika Buc, Helena Konosova, Ladislav Roman, Tibor Roman, Jozef Bozik, Richard Barta, David Morton in: Deadly Synergy: between Postcovid & Posttrauma Stress Syndrome in Areas of Armed Conflicts in COVID-I9 Era (Note), Clinical Social Work and Health Intervention, No.6, Vol 13, 2022.
3. Rammiya Gottschalk, Alexandra Al Trad in: Depression not only due to Post COVID-19 Syndrome: Happiness Diary & Mental Health, Clinical Social Work and Health Intervention, No.6, Vol 13, 2022.
4. Jaroslava Polonova, Miroslava Bednarikova, Jana Vallova, Marketa Vladarova, Monika Gulasova, Ingrid Hupkova, Zdenka Mackova, Zuzana Hajdenova, Eva Haluskova, Bozena Igliarova, Daniela Hennelova, Monika Bosnakova, Pavel Bryndzak, Marek Stachon, Danka Giertliova, Peter Mlynarcik, Michal Valach, Josef Bozik, Peter Mlynarcik, Ladislav Roman, Zlatica Ondrusova, Richard Barta, Vladimir Krcmery, Paulovicova Anna, Vrankova Emilia, Radi Frantisek, Linda Bazalickova, Maria Hardy in: Survey of Alcohol, substance Abuse, depressive Disorders & other social Pathology in Refugees and Homeless in Postcovid Era: Two cohort nonrandomized Survey in 109 Clients in Post COVID-19 Period, Clinical Social Work and Health Intervention, No.6, Vol 13, 2022
5. Jan Sikuta, Jaroslava Drgova, Igor Kmit, Vladimir Krcmery in: Discussion on COVID-19 Prevention apart of Public Health: Several Judgments of national and international Courts Helps to prepare us for the next Wave of Pandemics (Letter to the Editor), Clinical Social Work and Health Intervention, No.6, Vol 13, 2022.
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Alcoholism – Epidemic of the Current Time after COVID-19 Pandemic (Letter to the Editor)

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Abstract:

Introduction: Harmful consumption of alcohol has a serious impact on public health and is considered as one of the main risk factors for health damage and disease on a global level. Increased consumption of alcohol is dangerous at any age; however, a greater risk has been shown at younger age. For this reason, our research has been focused on the consumption of alcoholic beverages among adolescents.

Objective: We investigated the attitudes of students in relation to alcohol consumption.

Material and methodology: To obtain necessary information, we used existing available professional literature and a non-standardized questionnaire. For the defined research goal, we included in the research group older elementary school students and high school students. 272 respondents took overall part in the research. To test the hypotheses, we used Pearson's chi-

square test of independence, Student's t-test and one-factor analysis of variance (ANOVA test - non-parametric version).
Results: The results showed significant differences in alcohol consumption between smokers and non-smokers of elementary school students and high school students. In the observed group, today's generation of young people and teenagers have almost equal experiences with alcohol, whereas boys have a slightly higher drinking frequency. We also confirmed the connection between the frequency of consumption of alcoholic beverages and smoking. Regarding prevention, girls perceive a higher prevention than boys, but the subjective rate of alcoholism prevention importance is not age related.
Conclusion: Of all the negative phenomena of modern human society, alcoholism is the most dangerous, due to its massive distribution. Therefore, prevention at primary level is to be taken seriously, which emphasizes a controlled consumption of alcohol. Considering the unfavorable statistical indicators of the increased alcohol consumption, especially in case of women, it is necessary to create long-term selective preventive programs.

Introduction

"*A glass of alcohol hides all the happiness in the world and all the despair of not being able to achieve that happiness*."

(Pierre Baudelaire)

The repeated trivialization of alcohol consumption, which is undeniably supported by the cultural tradition of our society, does nothing to change the fact that alcohol is still the number one drug in our conditions. Due to the influence of mass communication media and the influence of advertising, we are becoming more and more tolerant of alcohol abuse, which many parents, teachers, and professionals working with people of different age groups perceive as the lesser evil. Of all the negative phenomena of modern human society, alcoholism is the most dangerous, due to its mass distribution.

Every year, 4,000 Slovaks die because of drinking alcohol, and the reason for every third visit to the doctor is a disease that is a consequence of excessive drinking. Alcoholism has long been one of the leading causes of divorce rates and has a negative impact on violent crimes, injuries and traffic accidents.

Alcoholism as a medical and a social problem

According to the International Classification of Diseases (ICD-10), they are addicted from psychoactive substances mental disorders and disorder behavior induced using psychoactive substances (1). The social and medical view of the problem of alcohol addiction was evolving gradually, the very concept alcoholism is today common and customary. In the past, alcoholism was considered more of a moral weakness, but today's modern medicine has named it as a disease.

In the 1980s, the term alcoholism was replaced by the term alcohol addiction syndrome(2). MKCH distinguishes the various syndromes caused by alcohol – diagnosis F:10. x, which in practice can be classified together. The World Health Organization (WHO) reports findings that excessive alcohol consumption is involved in more than 60 diseases and damages to human health. Most often there is: cancer; damage to the liver and pancreas; increased blood pressure; heart disease; disorders of a nervous system; negative influence on the potency and healthy development of a fetus. Psychological consequences and complications are not negligible, apart from the addiction itself, especially, depression as well as inclinations to committing a suicide. Alcohol is the most common risky factor, which could be prevented from damages to health and deaths of young people. It proved that the control of availability and offers of alcohol belong to between the most effective and financially the most effective approaches to restrictions of health damages in connection with alcohol (3).

Incidence of Alcoholism in the Countries of the European Union

In February 2011, the World Health Organization published the results of a survey of alcohol consumption in the world in the years 2003-2005. In 2005, 6.1 liters of alcohol were consumed per person in the world.

Numerical data on alcohol consumption in the selected, total of 18 countries of the European Union, are set at the value of 1 liter of 100% alcohol, per person in a specific country, a state from the period of February and March 2009. From the presentation of the survey, it is clear that the lowest alcohol consumption is in Norway 5 l / person, followed by Sweden 6.71 l / person, Poland 8.26 / person, overall average value, Netherlands 9.45 l / person, Belgium 9.64 l / person, Finland 9.72 l / person, Great Britain 9.73 l / person, Spain 11.17 l / person, Denmark 11.3 l / person, Hungary 11.5 l / person, Croatia 11.98 l / person, Austria 12 l / person, Slovak Republic 12.11 l / person, Germany 12.54 l / person, France 13.54 l / person, Czech Republic 14.94 l / person, Ireland 15.8 l / person, with the highest value Portugal 16.59 l / person. Slovaks' annual consumption of alcohol per person is 10.3 liters, to which 3 liters of home-made alcohol must be added, which ranked us the 19th place.

The survey was aimed at residents of individual states aged 15 and over. Alcohol contributes to 2.5 million deaths, annually. In Slovakia, this is the death of every 10th man. Slovakia suffers more from pure alcohol consumption than from drugs. In 2008, experts in Slovakia estimated 10,600 to 33,500 problem drug addicts and 433,000 people, i.e. 8% of the adult population, who have problems with alcohol. More than 3 million people died in the world in 2016 because of drinking too much alcohol, more than three quarters of these deaths concerned the male population. Currently, 2.3 billion people worldwide consume alcohol and according to WHO estimates, 237 million men worldwide have alcohol problems and 46 million women.

Europe leads in alcohol consumption per person, despite the fact that balance has decreased roughly by 10% since the year 2010. Current trends point to increasing global consumption of alcohol per person in following years, especially, in Southeast Asia, the Western Pacific, and both American continents. In Slovakia, according to the data of the Slovak Statistical Office, a slightly decreasing trend has been recorded of alcohol consumption per person since 1990. In 1990, consumption of pure alcohol per inhabitant of the SR per year was 10.4 liters and in 2015, it was 8.7 liters. Similar trends are also in the age categories of 15+ years and 18+ years. In the year 1990, recalculated consumption per person in the categories 15+ years she was13.9 liters and in

Chart 1 Consumption of alcohol in the selected countries of the EU according to the annually 100% alcohol drunk in liters.

Portugalsko	16,59
Irsko	15,8
Česko	14,94
Francúzsko	13,54
Nemecko	12,54
Slovensko	12,11
Rakúsko	12
Chorvatsko	11,98
Maďarsko	11,5
Dánsko	11,3
Španielsko	11,17
Velká Británia	9,73
Finsko	9,72
Belgicko	9,64
Nizozemsko	9,45
Polsko	8,26
Švédsko	6,71
Norsko	5

(Source:http://www.ipsos.cz/)

age category 18+ years was 14.9 liters. In 2015, this consumption dropped to 10.2 liters at the age of 15+ and to 10.7 liters at the age of 18+ per year per inhabitant in the Slovak Republic. The data are derived based on the balance in manufactured alcohol method and illegal consumption is not taken into account (4).

From 2004 to 2008, a sharp increase in alcohol poisoning was recorded, especially among young people aged from 15 to 30, which was caused by the so-called binge drinking of alcohol. During this period, the number of people aged from 35 to 50, treated for cirrhosis of the liver, and people who voluntarily submitted to alcohol treatment increased. Excessive drinking of alcohol causes up to 60 physical diseases (5). Every 3rd visit to a general practitioner is related to excessive alcohol consumption. Activity reports of the outpatient clinic for drug addictions point to an increase in the number of examinations of alcoholics, which in 2003 accounted for 47.5% of all examinations.

In 2003, 19,374 alcohol addicts and 4,970 drug addicts were treated in drug addiction clinics. These figures also indicate that alcoholism in Slovakia is a serious social, societal and health problem for the entire society (6). It is estimated that between 5% and 10% of adult men and about 2% of adult women are addicted to alcohol (7). At the end of the Eurobarometer survey, published in March 2007, it is stated that: 25% of Slovaks did not drink alcohol in the last year; 5% drank daily; 29% drank once a week; 20% once a month.

The situation in Slovakia is as follows: 2/3 of Slovaks have 1 or 2 drinks; 14% do not drink at all. As many as 75% of the respondents expressed the opinion that everyone is responsible for protecting themselves from the harmful effects of alcohol (8).

The consumption of alcoholic beverages in the Czech Republic also increased in 2012. According to the statistics of the CZSO, the average resident of the Czech Republic consumed 175.2 liters of alcohol per year, which is 6.4 liters more than in 2011. The largest increase in the consumption of alcohol from the assortment was recorded by beer, when its consumption increased by 6.1 liters year-on-year. The annual consumption of wine also increased 0.4 liters yearly. It stopped at a total volume of 19.8 liters per person. The consumption of spirits, on the other hand, apparently thanks to the methanol case, fell by 0.2 liters to the final 6.7 liters per person. Beer accounts for 85%, wine 11%, and spirits 4% of the total volume of consumption of alcoholic beverages (9).

Reasons for Addition to Alcohol among Children and Youth

Increased consumption of alcohol is dangerous at any age, but young people are at greater risk. In 2005, it was found that up to twice as many children regularly consume alcohol in Slovakia than in 1995. From 2000 to 2005, up to 131 severely intoxicated children were hospitalized in the Children's Faculty Hospital in Bratislava, with an average age of 14 to 15 years (TASR, 2005).

Risks of alcohol in children and adolescents according to Nešpor (2010): due to the fact that the weight is lower, alcohol is slowly absorbed and can lead to poisoning sooner; inhibitions are lost under the influence of alcohol; the tendency to take risks increases. Addiction rises at a young age more often than in adulthood; alcohol having a stronger effect on the psyche due to lower tolerance. Often people who had experience with alcohol in their youth also start experimenting with other addictive substances; there is a higher risk of intentional or unintentional harm to themselves or other people; as a result of drunkenness there is also a high risk of sexually transmitted diseases and unwanted pregnancy (10).

Since we are talking about young people, it is highly assumed that they attend school. Therefore, it should be noted that alcohol also disrupts the development of the brain, especially the white matter and the hippocampus, which is essential for memory. This can lead to learning difficulties. Furthermore, it can also affect growth retardation, hormonal disorders of girls and lower bone mass density of boys (11). In 2007, the Public Health Office of the Slovak Republic, the Tobacco and Alcohol Control Center published the results of research on the target group of respondents from 15 to 29 years of age, which show that 39.5% of respondents started drinking alcoholic beverages at the age of 15 or earlier. If parents do not drink, the number of respondents who have not tried alcohol increases. As many as 79% of respondents think that the legal norms, which are

supposed to protect young people from alcoholism, are not observed in the Slovak Republic (12).

The Research Objectives

The objective of the research was to find the attitudes of pupils and students regarding consumption of alcoholic drinks. On the basis of the defined research, we formulated the following hypotheses:

Hypothesis 1: Gender of respondents influences the frequency of alcohol consumption.

Hypothesis 2: Smoking supports consumption of alcohol.

Hypothesis 3: The gender of respondents affects the subjective assessment of importance of alcoholism prevention at schools.

Hypothesis 4: The subjective measure of evaluation of the importance of alcoholism prevention depends on the age.

Research Methodology

In order to reach the defined research objectives, we involved older pupils at primary schools and secondary schools. 272 respondents participated in the research. We processed the obtained data into a tabular database, from which we drew statistical data evaluation. To verify hypotheses, we used The Pearsons chi-square test of independence, Students t-test as well as one-factor analysis dispersion (ANOVA test–non-parametric version).

Demographic Data

Out of a total of 272 respondents, 137 boys and 135 girls participated in the research. The composition accordingly were the total number of those involved respondents from the perspective of type schools is 18.8% of pupils at primary schools, 24.9% of students at secondary grammar schools and 57.3% of students at vocational secondary schools.

Another demographic question we ascertained - the age of the respondents. The youth who participated in the research were from 14 up to 20 years of age. Other characteristics of the age-related research and a gender-related research are listed in Table 2.

For further evaluation of the obtained data, we divided the research participants according to the age into 3 groups: 14-15-year-olds, 16-17-year-olds and 18-20 year-olds. We did not create a separate group of 20 year olds as only 3 respondents, 2 boys and 1 girl participated in the re-

Table 2 Division of Respondents according to Age

Characteristics according to age	The boys	The girls	Total
	Age in years		
Average Age	17.31	16.73	17.02
Medium Value File (MEDIAN)	18	17	17
The most numerous occurrence (MODE)	18	17	18
Marginal Values	14-20	14-20	14-20

Table 1 Division of Respondents According to Gender

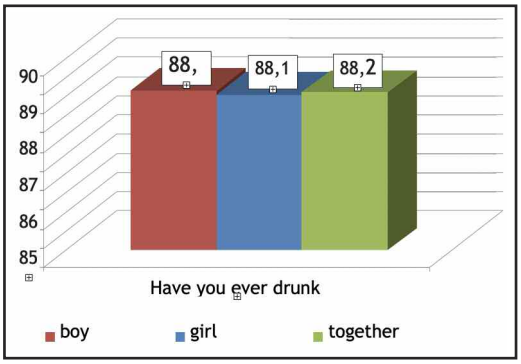
Gender	Total	Primary School	Secondary Grammar School	Secondary School	Total	Primary School	Secondary Grammar School	Secondary School
	frequency				percentage ratio%			
Boys	137	18	23	96	50.4	35.3	35.4	61.5
Girls	135	33	42	60	49.6	64.7	64.6	38.5
Total	272	51	65	156	100	100	100	100

search in this age category. In terms of the correctness of the evaluated results, it is so low that the number in the group is not representative, therefore, we merged these respondents with the planned one group of the age between 18 and 19. Division of respondents according to the age related to gender is documented in the column Graph 2.

Graph 2

It illustrates the percentage of pupils and students, divided by gender, who have already been drunk at least once in life. The data found are balanced and show that gender parameter practically does not affect the alcohol consumption.

Graph 2 Percent of age of students who have already drunk alcohol



Next, we searched the ratio of respondents who have already been drunk. 64.7% of all research participants have already been drunk. 65.2% of interviewed boys and 66.7% of girls at grammar school have already experienced being drunk. In vocational secondary school drunkenness is reported by 81.3% of boys and 65.0% of girls. The situation is different at primary schools, where 38.9% of interviewed boys and 27.3% school girls have already experienced drinking alcohol.

The frequency with which young people consume alcohol has a lot to say about young people's approach to alcohol; their life priorities; the way they spend their free time. Descriptive statistical evaluation is in Table 3. The more significant difference between the sexes is in the groups of frequent consumption, 5.1% of boys and 1.5% of girls consume alcoholic beverages several times a week. Daily consumption was reported by 3 male respondents but no female, which corresponds to 1.1% of the total number of respondents. The largest group for both boys and girls are consumers in the group 1 to 6 times a year. 70.8% of the interviewed boys and 80.7% of the girls consume alcoholic beverages never or at most once a month.

Table 3 Frequency of Alcohol Consumption

	Boys			Girls			Total		
	n	%	Cumulative	n	%	Cumulative	n	%	Cumulative
never	20	14.6	14.6	21	15.6	15.6	41	15.1	15.1
1to 6 times a year	47	34.3	48.9	57	42.2	57.8	104	38.2	53.3
Probably once a month	30	21.9	70.8	31	22.9	80.7	61	22.5	75.8
2 to 3 times a month	21	15.3	86.1	15	11.1	91.8	36	13.2	89.0
Probably once a week	9	6.6	92.7	9	6,7	98.5	18	6.6	95.6
several times a week	7	5.1	97.8	2	1.5	100	9	3.3	98.9
Almost daily	3	2,2	100	0	0.0	100	3	1.1	100
Total	137	100		135	100		272	100	

n - absolute frequency, % - relative frequency

Hypothesis verification

Hypothesis 1: Respondents' gender affects frequency of alcohol consumption.

The results obtained by evaluating the questionnaire survey are worrying from the point of view of the effective fight against adolescent alcoholism. Among the pupils and students of the participating schools, 88.3% of boys and 88.1% of girls have experience drinking alcohol. 73.0% of the interviewed boys and 58.3% of the girls had already experienced drunkenness in their lives. 29.2% of boys and 19.3% of girls consume alcohol at least several times a month. Consumption several times a week was reported by 5.1% of boys and 1.5% of girls. From the analysis of the frequency and percentage distribution of the frequency and frequency of alcohol consumption, we can conclude that, from the point of view of gender, today's generation of young people and adolescents has almost equal experiences with alcohol, boys have a slightly higher drinking frequency.

Table 4 Results testing for verification Hypotheses 1

Characteristics Chisquare test independence	
count degrees freedom	6
borderline Value	12.54
testing Value	7.7658
p-value	0.00048
F-test	0.54673

The calculated test value of 7.7658 is less than the Chi-square distribution table value of 12.59. The probability of the null hypothesis determined by the p-value of 0.00048 is low and based on this result we reject the null hypothesis. At the significance level of 95%, the alternative hypothesis is valid. A low value of the F-test result indicates a mismatch of variances of the dependent variable. The stated results indicate a weak dependence. Nevertheless, based on the described findings, we can conclude that the dependence of the frequency of consumption of alcoholic beverages by young people by gender was confirmed in the monitored group.

Hypothesis 2: There is a significant difference in the frequency of alcohol consumption between smokers and non-smokers.

In the evaluated group of young people, only 13.3% were smokers, 23.7% were occasional smokers and up to 63.0% were non-smokers. Compared to the large group of relatively regular alcohol drinkers, the proportion of smokers among pupils and students is therefore small. In the presented hypothesis, the smoking category is an independent nominal variable, the dependent variable, the frequency of alcohol consumption, is specified by frequency. We verified the hypothesis statistically using the Chi-square test at a significance level of 5%.

Table 5 Results testing for verification Hypotheses 2

Characteristics Chi square test independence	
count degrees freedom	12
border line Value	21.03
Testing Value	49.9011
p-value	5.5E-15

The calculated value of 49.9011 is greater than the table value of 21.03 based on this result we reject the null hypothesis and accept the alternative hypothesis. The true p-value calculated from the Student's t-distribution is significantly lower than the chosen level of significance. The test result at the 95% level showed significant differences in alcohol consumption between smokers and non-smokers. In the monitored group, the dependence of the frequency of consumption of alcoholic beverages on smoking was confirmed, which most likely promotes alcohol consumption among young people.

Hypothesis 3: The gender of the respondents affects the subjective evaluation the importance of preventing alcoholism in schools.

The results obtained by processing data on the gender of the respondents and their subjective evaluation of the importance of alcoholism prevention are processed in Table 6:

Table 6 Division of Frequency to Hypothesis 3

	the boys			the girls			together		
Rating Importance	n	%	Cumulative	n	%	Cumulative	n	%	Cumulative
very important	31	22.6	22.6	30	22.2	22.2	61	22.4	22.4
more likely important	47	34.3	56.9	45	33.3	55.5	92	38.8	56.2
I do not know	29	21.2	78.1	39	28.9	84.4	68	25.0	81.2
more likely useless	12	8.8	86.9	10	7.4	91.8	22	8.1	89.3
useless	48	13.1	100	11	8.2	100	20	10.7	100
Total sum	137	100		135	100		272	100	

n - absolute frequency, % - relative frequency

According to the data in the table, the differences between boys and girls are practically not negligible. In the studied data set, the category gender is an independent nominal variable, the dependent variable, the evaluation of the importance of prevention, is a nominal ordinal variable expressed on a 5-point scale. Since these are nominal variables, we will use the non-parametric Pearson's Chi-square test at the 5% significance level for testing.

Table 7 Results testing for verification Hypotheses 3

Characteristics Chisquare test independence	
count degrees freedom	4
Borderline Value	9,488
Testing Value	3.38741+
p-value	0.05519
F-test	0.74764
t-test	0.90891

A high value of a 2-tailed t-test with equal variance (0.90861) indicates a statistically insignificant difference in means between groups. The results of statistical testing of the obtained data show that Hypothesis 3 was not confirmed in our research set. Girls perceive the importance of prevention more than boys. We have to state the fact that the results of our research did not demonstrate with sufficient significance the influence of gender on the subjective personal assessment of the importance of prevention against alcohol among adolescents.

Hypothesis 4: The subjective measure of evaluating the importance of alcoholism prevention is related to age.

We will evaluate the influence of the age parameter on the subjective expression of the degree of importance of organizing preventive programs and activities. This is the relationship of an ordinal variable and a cardinal scaled variable. For verification, we used a one-factor ANOVA test. The results obtained by data processing are presented in Table 8.

Table 8 Results testing for verification Hypotheses 4

Characteristics one-factor ANONA test	
Factor-count degrees of freedom	2
Error-count degrees freedom	269
Total variability	403.99
Error variability	409.5
F-value	1,812
p-value	0.16535

The calculated probability p-value (0.16535) is higher than the determined

level significance level of 0.05 and therefore, the agreement of the mean values in the groups cannot be rejected. Differences between age groups cannot be considered statistically significant. The subjective rate of assessment of the importance of alcoholism prevention is not related to age.

Discussion

Alcohol is an insidious substance. Culturally and socially accepted, even celebrated, but from a chemical and physiological point of view clearly poisonous and addictive (13). Increased consumption of alcohol is dangerous

at any age, but young people are at greater risk. The youth themselves generally present themselves as sufficiently informed about the harmful effects of alcohol and the danger of addiction, but the results of long-term surveys regularly confirm negative trends in the consumption of legal and illegal drugs. This raises doubts in society about the sufficiency of prevention in schools, about its quality and effectiveness.

The results of our research also related to the issue of alcohol consumption by teenagers and the issue of alcohol addiction prevention in schools. 272 senior elementary school students and students of various types of secondary schools were included in the research group. The results of the research confirm that young adolescents often have to deal with the consequences of high levels of alcohol consumption, and at least some of them directly belong to the at-risk part of the population in relation to alcohol or other addictive substances.

Therefore, it is indisputably important to properly educate young people in the process of forming, as well as effective and targeted prevention of substance addictions.

In 2006, a survey was conducted in Slovakia to estimate the number of problem drinkers and alcohol-dependent individuals among adolescents aged 15 to 19 using the ADS scale. According to the results of this scale, 65,000 young people would be problem drinkers. While stating that around 18,000 young people would have physical manifestations of alcoholism (14). Based on the results, a high prevalence of alcoholism in these young people can be assumed at an older age. Also, a representative study conducted by the Federal Ministry of Health in Germany provided information according to which about 3% of the population over the age of 18 are addicted to alcohol (1.5 million) and 5% (3.5 million) are at risk of alcohol addiction.

Alcoholism will always occur in society. It would be naive and unrealistic to strive for the complete elimination of these socially pathological phenomena, but even so, we must take steps and thus fight for the prevalence of alcoholism among the adolescent population. The most important measure against the emergence of these socio-pathological phenomena is already rooted in early childhood, where through education we show the child that there is also a healthy way of life. It is also necessary to introduce appropriate measures to reduce the occurrence of these cases, not only through legislative amendments related to the issue of: inadequate sanctions, regulation of advertising of alcoholic beverages in the media. But also to actively carry out and support education, counseling of the youth and adult population (15).

Conclusion

The results of regular surveys at the national and international levels still point to an unfavorable development in alcohol consumption not only among adults but among children and youth. Therefore, the fight against alcoholism and the creation of various forms of strategy in the prevention of alcohol consumption are still relevant. It turns out that upbringing in the family has a fundamental influence on the development of an attitude towards alcohol and its consumption. Prevention at the primary level is particularly important, which emphasizes the controlled consumption of alcohol in view of cultural acceptance in our environments. Taking into account, the unfavorable statistical indicators of the increase in alcohol consumption, especially, on the part of women, it is necessary to create long-term selective preventive programs. The most critical moment in the attitude towards improving health is insufficient information, or insufficient knowledge of broad sections of the population (16).

Providing information about the consumption of alcoholic beverages in the least harmful way (principle of harm reduction) is recommended for experimenting adolescents. Preventive services

at the secondary and tertiary levels have their historical background and are carried out at a highly professional level in our territory (17).

References

1. BABECKA J, LACKO A (2021) *Proper adherence to pharmacotherapy in the elderly*. In: Ukrajina. Zdorovja naciji. 2021, Roč. 61, č. 3/1, s. 89-91. ISSN 2077-6594. DOI: 10.24144/2077-6594.3.2.2020.213712.
2. GROHOL M (2013) *Alcoholism, laboratory diagnostics*. Ludbeck. 2013;1, ISBN 978-80-89434-18-3.
3. HUPKOVA I (2009) Is alcohol the number one drug in Slovakia? In: *Social Prevention*. ISSN 1336-9679, 2009, vol. IV, no. 3, p. 22-24.
4. UVZ SR (2017) *Update of the National Action Plan for Alcohol Problems* 2013-2020. [online] 2017 [cited 2022-08-17]. Available at: http://www.uvzsr.sk/docs/info/podpora/Aktualizacia_Narodneho_akcneho_planu_pre_prob lemy_a_alkoholom_na_roky_2013_2020.pdf.
5. OKRUHLICA L (2010) Drug users in Slovakia switch to alcohol. In: *Great Epoch*. Available on the Internet: https://www.webnoviny.sk/narkomani-na-slovensku-prechadzaju-na-alkohol/.
6. HAVELKOVA B (2005) *Alcohol consumption in the Slovak Republic*, [cited 2021-07-21], Available on the Internet: http://verejnezdravotnictvo.szu.sk/SK/2005/4/havelekova_4_05-new.htm
7. NOVOTNY I (2009) Legal drugs. In: *Social Prevention*. ISSN 1336-9679, 2009, year IV, no. 3, p. 14-16.
8. EURACTIV (2007) *Master alcohol. The situation in Slovakia*, [cited 2022-07-18]. Available on the Internet: https://euractiv. sk/section/zdravotnictvo/news/majster-alkohol/.
9. KUCERA P (2013) *Alcohol consumption is increasing, the average Czech drinks 175 liters*. [cited 2022-07-22], Available on the Internet: http://aktualne.centrum.cz/ekonomika/nakupy/clanek.phtml?id=797074).
10. NESPOR K (2007) *Addictive behavior and addiction*. Prague: Portal, 2007. 176 pp. ISBN 80-7367-267-7.
11. NESPOR K (2006) *Alcohol in children and adolescents*. In: Clean Day. ISSN 1336-4243, 2006, 2/2006, p. 25.
12. OCHABA R (2008) Experiences, knowledge and attitudes of young people towards alcohol. In: *Medical Overview*. ISSN 0457-4214.
13. NOCIAR A (2018) *Final report from the TAD Survey among primary school pupils, secondary school students and their teachers in 2018*. Bratislava, VÚDPaP 2018, 87 p.
14. BABECKA J (2022) Nutrition for patients in the ambulance of primary. In: *Proceedings of Scientific Works. Days of practical obesitology and metabolic syndrome 2021*. 1st ed., Warsaw (Poland): Collegium Humanum – Management University, 2022. ISBN: 978-83958245-5-5, p. 10-22.
15. BABECKA J (2020) The impact of the Mediterranean diet on the health of the individual. In: Proceedings of Scientific Works. Days of Practical Obesitology and Metabolic Syndrome 16-18 July 2020. 1 st ed., Warsaw (Poland): Collegium Humanum - Szkoła Glowna Menedzerska ISBN 978-83- 958245-0-0. EAN 9788395824500, p. 11-16.
16. MARIA SEBESTENYIOVA, MIRIAMA BEDNARIKOVA, LUBOSLAVA LIBOVA, JANA OTRUBOVA In: Caregiver Strain in Community, Clinical Social Work and Health Intervention, No.6, Vol 13, 2022,3.44.
17. GULASOVA I, BABECKA J (2021) Role of public health and nursing of meeting Health in the 21st century: Prevention of lifestyle diseases. In: *Prosopon, Europejskie Studia Społeczno-Humanistyczne*, 34 (1) 2021. ISSN 1730–0266.
18. DUBROVINA N, GULASOVA I, BABECKA J (2020) Tendencies of the mortality rates from esophageal cancer in the EU countries and Ukraine. In: *Kharkiv Surgical School,* Kharkiv (Ukrajina) : Kharkiv Surgical School. – ISSN 2308-7005. – Vol. 101, č. 2 (2020), s. 102-107. DOI: 10.37699/2308-7005.2.2020.21
19. POLONOVA J, BEDNARIKOVA M, VALLOVA J, VLADAROVA M, GULASOVA M, HUPKOVA I, MACKOVA Z, HAJDENOVA Z, HENNELOVA D, BOSNAKOVA M, BRINDZAK P, STACHON M, GIERTLIOVA D, MLYNARCIK P, VALACH M, BOZIK J, ROMAN L, ONDRUSOVA Z, BARTA R, KRCMERY V, BAZALICKOVA L, HARDY M, Survey of alcohol, substance abuse, depressive disorders and other social,

pathology in refugees and homeless in post-covid era: Two cohort nonrandomized survey in 1O9 clients in post COVID-19 period, In *Clinical Social Work and Health Intervention*, No.6, Vol 13, 2022

Deadly Synergy: between Postcovid & Posttrauma Stress Syndrome in Areas of Armed Conflicts in COVID-19 Era (Note)

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Abstract:

Postcovid syndrome affects 5-20% of all patients with symptomatic Covid-I9 infection, resulting in temporary or permanent disability for next weeks or months. The commonest syndromes after long Covid-I9, (or chronic fatigue syndrome after Covid, or as synonymum postcovid syndrome) are psychic or psychosomatic disorders known under the name Depression and Anxiety Syndrome.

After the unrest and armed conflicts during the Covid era, clients or patients, mainly migrants of war, are also exposed to chronic post trauma syndrome related to previous or recent destruction of infrastructure, temporary homelesness and escape from affected regions/country. Cumulation of those 2 syndromes may have devastating consequences to both, individual health and economic losses due to permanent working and economy disabilities and consumption of health and social funds.

After the unrest and armed conflicts during Covid era,clients or patients, mainly migrants of war, are also exposed to chronic post trauma syndrome related to previous or recent destruction of infrastructure, temporary homelesness and escape from affected regions/country.

Introduction

The commonest syndromes after long Covid-I9, (or chronic fatigue syndrome after Covid, or as synonymum postcovid syndrome) are psychic or psychosomatic disorders known under the name of Depression and Anxiety Syndrome.

The aim of this note is to describe synergy in symptoms and prevention of both consequences of those mental health cumulative disorders and psychodramas within the last 3 years.

Areas of cumuation of posttrauma and postcovid syndromes

Within the last 3 years, at least 4 countries were affected both with armed conflict resulting from post trauma stress syndrome, and also af-

fected by global epidemics due to Covid-I9 and sometimes also another epidemic: e.g. Afghanistan, was covid replaced with armed coup and change of civil government with military forces of the Taliban; a worsening week in HC system after mild Covid, with emergence of TB; in Yemen destruction of water pipelines due to shelling resulted to cholera the largest since WWII outbreak: in Ukraine "underreported weakness of TB control after war started in late February 2O22, and postcovid syndrome were augmented by post trauma stress syndrome, and cholera infection threatened Mariupil as well. In 4th place where cumulation of those risk factors for mental health, in Karabakh, the border state between Armenia and Azerbaijan, where war started just after the 2nd Covid- I9 wave in Stepanakert. Finally, everlasting armed mainly tribal conflicts in North Ethiopia (Tigray) and currently in Myanmar, as reported by Lancet ID in September, another with landmines fortunately with less covid, but more war and additional famine.

All those areas have weak health infrastructure, and are unable to serve with ambulatory first aid or later mental health services for the future, as a number not only of specialists but of basic medicine and nursing shortages.

Potential Solutions and phases of action

I. The first imminent and causal solution is to stop the war or reduce the active conflict to smoldering or stable, whoch was successful temporararily in Karabakh but unfortunately with reemergence, and in Yemen. However, the health sector has not been improved due to destruction of infrastructure (water pipelines, food road supply chain) and emigration of HCW (e.g. Afghanistan, Myanmar).

Individuals and volunteers with practical skills from MSFG Tropicteam, on individual basis or heroism, is the only solution during the acute period of recent conflict/war. Military acute medicine, with no preventive or short term strategies is sometimes possible.

2. The second, in the immediate postwar period, is the help of international HCW (Healthcare workers) bodies inclusive of MSF and UN Committee for Refugees. However, they work only during ceasefire and in reemergence or during ,,smoldering,, pseudo peace leave the country (Ethiopia, Somalia, Yemen). The only preventive action can be landmines removal (good practice in Bosnia, Kosovo, Cambodia, Vietnam etc.) and water supply reconstitution is imminent to prevent another cholera outbreaks.

3. The third, after definite peace is established, rehabilitation of the country and infrastructure, seen after ISIS/DASH has been removed from Iraq and Syria, by international community. permanent peace is a „*conditio sine qua non*„

4. Massive acute support to healthcare establishing internal bodies: e.g. regional WHO offices, purchasing vaccines, medication, donations by church charities and donations from states or world bank (purchasing 95% of all vaccines, antimalarials, antiuTB, and HIV medications);

e.g. YF vaccine campaign in DRC Angola after 3O years of civil wars. Medical Nursing Schools re-establishment and support is very effective, if peace is expected for at least 3-6 years.

5. Permanent chronic support by donors, pharmaceutical companies, philanthropic organisations and individuals (BMGates Foundation, GSK deworming program in Western Africa, SAFE program from Pfizer against Trachoma, in postwar Liberia, Sierra Leone, Cote d'Ivoire etc.).

Absence of war or terrorist attacts for a minimum 10 years is required.

Conclusion

In conclusion, the number one solution is a direct investment of diplomacy or military alliances negotiation to mortality and acute life savings. Military and field groups and mobile hospitals are welcome in Phase 1 and 2, and international solidarity in phase 3 or/and 4. For upgrade from acute emergency medicine to secondary or even primary prevention years or decades are necessary, with devastating consequence for median life survival, childhood and maternal mortality, which are key indicators for long term support for the destroyed healthcare system and HCW education. Cumulation of posttrauma and postcovid syndromes does not unfortunately give us a lot of hope in recent war.

References

1. MURGOVA A, POPOVICOVA M *et al* (2022) Among refugees of war, acute Posttrauma Stress syndrom and chronic PTS are leading. *CSWHI* vol 12.2022 vol 3.p 33.
2. BAKOS M *et al* (2022) Influence of antican-

cer treatement to the quality of life in cancer PTS. Clinical Social Work and Health Intervention. 2022.3.44.33.
3. PAVELKOVA J, SCHAVEL M, SKORCOVA J (2022) The issue of homelessness in young people. *Clinical Social Work and Health Intervention*. 12.2022.3.
4. DRGOVA J, BAKOS M, MURGOVA A, GALLOVA A *et al* (2022) Minimal occurence of TBC among migrants of war. *Clinical Social Work and Health Intervention*. 12.2022.1.14.
5. MASAN J, HAMAROVA M, LICHNER M, SMIDOVA M, TREBSKI K (2022) Specificities in the guidance of refugees from Ukraine. *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
6. ZAVIS M, OLAH M (2022) Ethical Challenge of Discerning Refugees from Economic Migrants: Critical Observations and Conclusions Regarding Slovak Capital Facing Huge Tide of Ukrainian Citizens Nowadays (Case Study), *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
7. KHAN N, HUSSAIN N, NAZ A (2022) Awareness, Social Media, Ethnicity and Religion: are they Resposible for Vaccination Hesitancy? A systematic Review with Annotated Bibliography, Clinical Social Work and Health Intervention, No.4, Vol 13, 2022.
8. BUNDZELOVA K, HAMAROVA M, MURGOVA A, POPOVICOVA M, KRCMERY V, OLAH M, BRICHTA G, JACKULIKOVA M, KMIT I, HUNADYOVA S, VALLOVA J, VLADAROVA M, ROMAN L, BOZIK J, FRITSCH T, TORAN A (2022) Low occurence of Tuberculosis and HIV among Ukrainian immigrants of war at the border post in Uzhorod - Vysne Nemecke at point prevalence testing (note), *Clinical Social Work And Health Intervention*, No.4, Vol 13, 2022.
9. VALLOVA J, OLAH M, BUNDZELOVA K, HOCHMAN R, HUNADYOVA S, LACA P, VLADAROVA M, BERKA M, CZARNECKI P, KRCMERY V, KMIT I, BUTZ M, DINKEL J (2022) Weakness period in food assistance as part of social work for Ukrainian migrants of war conflicts, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
10. BUNDZELOVA K, VSELICHOVA M, VALLOVA J, VLADAROVA M, HUNADYOVA S, KRCMERY V, FARKAS M, ROMAN L, BUJDOVA N, KMIT I, ZAKHARIAN M, DIXON J, KIANN J (2022) Social Work and Health Intervention in the Karabakh Region of Armenia during the war in 2019, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022
11. VLADAROVA M, VALLOVA J, HUNADYOVA S, KRCMERY V, KMIT I, BUNDZELOVA K, BYDZOVSKY J, BOZIK J, ROMAN L, BUJDOVA N, MIRWALD A, MUSCHIK A (2022) Destruction of socioeconomic, educational and health infrastructure including pipelines may led to cholera outbreaks in Mariupol and pother damaged towns in Ukraine, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
12. BALUCHOVA B M (2022) The role of media in humanitarian interventions and relief campaigns on the example of Slovak nonprofits response to the conflict in Ethiopia, Clinical Social Work and Health Intervention, No.4, Vol 13, 2022.

Depression not only due to Post COVID-19 Syndrome: Happiness Diary & Mental Health

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Abstract:

Research is always concerned with the topic of how to cure depressive symptoms or alleviate the symptoms. A central therapeutic goal in *cognitive behavioral therapy* is cognitive restructuring. At the behavioral level, a particular therapeutic intervention is often used to promote a more positive mindset: a positive effect on the psyche of keeping a happiness diary has already been demonstrated. The results of this work are consistent with others reported in the literature, which is why such studies should also be conducted on clinical groups. The purpose of this paper is to investigate the long-term keeping of the happiness diary and what effect this has on the depressive course symptomatology. Subjects were asked at catamnesis (6 months after the end of therapy) whether they still kept their diary reg-

ularly and were then instructed to complete the BDI-II again and return it to the practice. These scores were compared to the initial diagnostic from the patient's therapy period (pre- and post-measure-ment) and analyzed. Subjects who had not continued the happiness diary in the next 6 months after the end of therapy achieved a higher score in the BDI-II compared to the subjects who had continued the happiness diary regularly. The results of this work allow conclusions to be drawn about the importance of relapse prevention in psychotherapy.

Definition depression

Depression is one of the affective disorders. With the help of the classification system for mental illnesses ICD-10, various forms of progression and their different degrees of severity are distinguished (Brakemeier *et al*., 2012).

Treatment depression

Every 5th employee in Germany was diagnosed with depression in 2021 (Stiftung Deutsche Depressionshilfe). Depression is easily treatable with a recognized psychotherapy method (behavioral therapy, depth psychology-based therapy, psychoanalysis or systemic therapy) and/or a psychopharmacological therapy (*Stiftung Deutsche Depressionshilfe*).

According to the S3 guideline (treatment recommendation for unipolar depression), the therapy recommendation is based on the severity of the depression. In the case of a mild depressive episode, psychopharmacological therapy is not recommended. For moderate depression and

Figure 1
ICD-10
"The criteria for a depressive episode are met if the symptoms listed below have been present for ***at least 2 weeks.***

A	At least 2 (or 3 for a severe episode) of the following symptoms must be present: - . depressed mood, to a degree clearly unusual for those affected, most of theday, almost every day, and essentially unaffected by circumstances - . loss of interest or pleasure in activities that were normally enjoyable - . reduced drive or increased fatigue
B	and in addition at least one of the following symptoms is present, the totalnumber of symptoms being at least 4-8 depending on the severity (see below) - . loss of self-confidence or self-esteem - . unfounded self-reproaches or pronounced, inappropriate feelings of guilt - . recurrent thoughts of death or suicide; suicidal behavior - . complaints about or evidence of reduced ability to think or concentrate, indecision or indecisiveness. - . psychomotor agitation or inhibition (subjective or objective) - . sleep disorders of any kind - . Loss of appetite or increased appetite with corresponding change in weight

Gradation of depression into degrees of severity				
Mild depression	.	2 Symptoms of the first 3	.	Total number min. 4
Moderate depression	.	2 Symptoms of the first 3	.	Total number min. 6
Severe depression	.	3 Symptoms of the first 3	.	Total number min. 8

Source: http://www.stuedeli.net/reto/medizin/kdb/content/psychi/DepressionDefinitionTab.html

above, combination treatment of psychotherapy and antidepressants is recommended. In evidence-based studies, cognitive behavioral therapy (CBT) and intrapersonal psychotherapy (IPT) have been shown to be the most effective. In relapse prophylaxis, CT in particular was shown to be more sustainable than medication (Niebling, W. , 2011).

Happiness diary as a KVT intervention

When keeping a happiness diary, only positive content is recorded daily in key words, e.g. successes, positive experiences, things for which one is grateful and one's own sources of strength. Keeping a happiness diary on a regular basis can help people achieve a more optimistic and mindful attitude towards life. Improvements in mood and happiness experience have already been confirmed in pilot studies (Laireiter *et al.,* 2012). In the therapeutic setting, diaries are used, e.g. with depressive patients as a method for prevention and psychological stabilization (Suhr *et al*., 2017). It trains the positive inner orientation and serves the cognitive restructuring, i.e. to develop a more positive way of thinking. It should be trained to routine behavior, thus promoting gratitude and mindfulness. A more optimistic mindset develops as a result of writing positive content. The more often we write about positive events, the easier it is to adopt a positive basic attitude. This is because basic attitudes can be trained and consolidated over time (Wänke *et al*., 2011).

In this study, the long-term keeping of the happiness diary is to be examined and what effect this has on the depressive course symptoms. The research question is: Does the regular and long-term keeping of the happiness diary have a positive influence on the development of depressive symptoms? The research hypothesis is: The regular and long-term keeping of a happiness diary has a positive effect on depressive symptoms .

Method

Participants

A total of 80 patients from the psychotherapeutic practice in Legden took part in this study. The participants were divided into two groups by means of a questionnaire. In group 0 (40 participants): All patients who continued the happiness diary for at least 6 months (more than 3 times a week) after the end of therapy and in group 1 (40 participants): All patients who did not continue the happiness diary regularly or not at all. Questionnaires that were not completed in full were not counted.

Materials

The material consisted of a cover letter, 2 questionnaires and a prepaid envelope. In the first questionnaire, the patients were asked whether they had continued to use the happiness diary regularly in the last 6 months, using closed questions. The second questionnaire consisted of the BDI-II. The Beck Depression Inventory Revision is an instrument for assessing the severity of depression in psychiatrically diagnosed adolescents aged 13 years and older and adults. The inventory consists of 21 statements about depressive symptoms. The raters are given 4 statements for each of the statements, from which they must select the one that most closely matches how the raters have felt in the past 2 weeks. Two statements (changes in sleeping habits and changes in appetite) have special features. These relate to both decreases and increases in sleep and appetite. The inventory is interpreted as follows: A total score of 0-8 points indicates no evidence of depression: 9-13 points - Minimal depression 14-19 points - Mild depression - 20 points and above; Moderate depression and 29 points or more indicates Severe depression. The maximum score that can be achieved is 63 points. The lower the score, the less severe the depression.

Reliability: The German version has been used in numerous studies. The following values (Cronbach's alpha) were obtained: Depressed patients in treatment (N = 288) .93, patients with primarily other mental disorders (N = 123) .92, healthy persons (N = 582) .90. **Repeatability** was determined on a community sample (N = 86) and a period of 5 months. It resulted 14 in a very good value of .78.

Test validity: In different samples, there was high agreement with both self-rated depressiveness (FDD-DSM-IV), r = .72 to .89, and with other-rated depressiveness (MADRS), r = .68 to .70.

Procedure

Data were collected from 04/09/19 to 01/08/2022. Each participant was able to com-

plete the questionnaires at pre- and post-measurement in the practice or at home via paper-pencil. At the post-measurements, the investigator was not present and participants could choose when to complete them. During the post-measurement, the patients were informed that this was a follow-up, that their data would be used for a study by me and that their data would be processed anonymously and confidentially. If the participants are interested, the results of the examination will be sent to them by e-mail. Finally, I thanked the participants for their participation. The pre-measurement (BDI-II) was taken in the first quarter of the therapy. The testing took about five minutes. There, the patients had just started keeping the happiness diary (2 weeks). The post-measurement (BDI-II) and the catamnesis questionnaire were taken 6 months after the end of therapy. This test took about 8 minutes.

Design

The non-experimental study had a between-subjects design and the sample was longitudinal. The study had depression severity (the total score of the BDI-II, quantitative) as the dependent variable and writing behavior as the independent variables in 2 groups: Keeping happiness diary and not keeping happiness diary (qualitative).

Before beginning the analysis, the investigator first prepared the data. First, the data were coded (data matrix created) and then all items were added to a total score. Only then could the analysis begin. First, the sample was described using descriptive statistics. The continuous variable (severity of depression) was described by mean and standard deviation.

To answer the research question, the study conducted ANOVA analysis to compare the difference between groups in the mean score of BDI-II questionnaire. The strength of the significant effect was assessed using eta^2. A relationship is considered strong if eta^2 >.20, weak if eta^2 <.10, and moderate in between (Ellis, 2006). The computer program R was used for statistical data analysis and graphical representation of the data or results.

Results

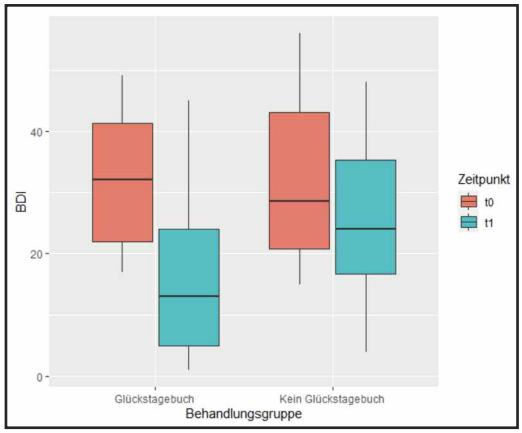

Figure 2: Mean values of the BDI-II of both groups (happiness diary continued/no happiness diary continued) at the beginning of the treatment (t0) and afterwards (t1). From the ANOVA analysis with the independent variable „writing behavior" (both groups kept happiness diary at baseline t0) and BDI-II score as dependent variable, there is no significant (p = .69.) difference between the groups at time t0 (start of treatment). Thus, both groups had almost the same baseline BDI-II score at baseline (M = 31.5, SD = 10.3) vs. (M = 31.4, SD = 12.2). At post-measurement (t1), the groups (happiness diary/no happiness diary) differ significantly. Patients who regularly continue the happiness diary score significantly lower on the BDI-II (M = 17.2, SD = 14.4) than patients who do not or irregularly continue the happiness diary (M = 25.6, SD = 11.4). The factor time has a significant influence on the BDI-II in both treatment groups.

Discussion

The research question was: *Does the regular and long-term keeping of a happiness diary have a positive effect on the development of depressive symptoms?* The research hypothesis is: The regular and long-term keeping of a happiness diary has a positive effect on depressive symptoms. From the results, it can be inferred that there is a significant relationship between long-term happiness diary keeping and depressive symptoms. In both groups, the depression score decreased after 6 months. In the group who kept the happiness diary, the score is significantly lower. Thus, the hypothesis of the study can be confirmed.

The results found above are consistent with the literature already available. A happiness diary, when used regularly, offers the possibility to adopt a positive and conscious attitude towards life. This can be helpful in depressive phases as

well as in normal everyday routines (Laireiter *et al*., 2012).

Nevertheless, the study is not free of shortcomings. Regarding the methodology, another measurement could be included in the study, namely *the measurement of general well-being*. However, the measurement was not possible in this study due to time constraints. In addition, recruiting a more international sample might allow for a better generalization of the results found. It might be interesting to see if there are differences between keeping the happiness diary and ethnicity. However, in this study, most participants were German. In addition, a general healthy lifestyle can be sought to correct the lifestyle. It follows that there is much room for follow-up research, such as: (a) an additional measurement of general well-being; (b) an additional measurement of healthy lifestyle; and (c) recruitment of a more international sample.

In conclusion, regular and long-term keeping of happiness diaries has a long-term positive effect on the severity of depression and can serve as a good preventive measure and relapse prophylaxis.

References

1. BECK A T, STEER R A, BROWN G B (2009) Beck-Depression-Inventa Revision, Deuteche Bearbeitung von M. Hautzinger, F. Keller, C. Kuhner. *Pearson Auflage*.
2. BRAKEMEIER E, SCHRAMM E, HAUTZINGER M (2012) *Chronisc*. *Auflagehe Depressionen*. *Hogrefe* Verlag. Göttingen.
3. ELLIS J (2007) *Statistiek voor de psychologie*. *Verdeling van een variabele, samenhang tussen twee variabelen*. Boom Onderwijs. Amsterdam.
4. DILLING H, FREYBERGER H J (2021) *Taschenführer zur ICD-10-Klassifikation psychischer Störungen*. Hogrefe AG. http://www.stuedeli.net/reto/medizin/kdb/content/psychi/DepressionDefinitionTab.html https://www.deutsche-depressionshilfe.de/forschungszentrum/deutschland-barometer-depression
5. SEBESTENYIOVA M, BEDNARIKOVA M, LIBOVA L, OTRUBOVA J (2022) in Caregiver strain in community, Clinical Social Work and Health Intervention, No.6, Vol 13, 2022,3.44. Laireiter, A., Spitzbart, K., & Raabe, L. (2012). *Glückstagebücher als Methoden Gesundheitspsychologischer Intervention* - Zwei Pilotstudien. Empirische Pädagogik, 26(2), 312-332.
6. NIEBLING W, HARFST T (2011) *Die NVL/S3-Leitlinie Unipolare Depression–was ist wichtig*
für die hausärztliche Praxis? Z Allg Med.
7. SUHR M, RISCH A K, WILZ G (2017) Maintaining mental health through positive writing: Effects of a resource diary on depression and emotion regulation. *Journal of Clinical Psychology*. https://doi. org/10.1002/jclp.22463 of a resource diary on depression and emotion regulation. *Journal of Clinical Psychology*. https://doi. org/10.1002/jclp.22463.
8. WANKE M, REUTNER L, BOHNER G (2011) Einstellung und Verhalten. In: H. W. Bierhoff, & D. Frey (Hrsg.), *Sozialpsychologie – Individuum und soziale Welt Hogrefe*. 211–231.

Survey of Alcohol, substance Abuse, depressive Disorders & other social Pathology in Refugees & Homeless in Postcovid Era: Two cohort nonrandomized Survey of 109 Clients in Post COVID-19 Period

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Abstract:

The postcovid era augmented with armed conflict in Eastern Europe brings new waves of social pathology, including postcovid syndrome, where the commonest signs are depression, anxiosity, followed by alcohol, tobacco, or other substance use. Two cohorts of clients of social work: one among migrants and refugees (98 clients); 11 homeless have been studied on development of both symptomes related to stress (post trauma stress syndrome after armed conflict, and chronic stress of homelesness and isolation). Only one case of HIV and HepC in both groups have been recorded, both on ARV or HCV treatment. Tobacco use has been increased in the group of posttrauma stress syndrome related to Group I (armed conflict refugees), but alcohol or substance use were sporadic and exceptional both before and after admission in the 3m follow up.

Introduction

After the 3rd wave in Western Europe, Postcovid syndrome and posttrauma stress syndrome in Eastern and Central Europe are leading causes of reactive social pathology after winter and during the spring season in 2022. Postcode syndrome is known with psychosocial symptomes, independently of the severity of the first clinically apparent diseases and less frequent in vaccinated individuals.(1-12). Here, we analyze two groups of patients with different risk factors/environment: refugees and migrants escaping from war in Easttern Europe, in Central Slovakia in Pruske, a Franciciscan Collegium in Central SK and homeless from a shelter near major urban city – Bratislava (1-12).

Clients and Methods

The first group consisted of 98 clients of social work - migrants and refugees of whom only

2 have previously had confirmed covid I9. All have post trauma stress syndrome. They were managed at Franciscan Convent, St. Francis College at Pruske located in the rural area of Central Slovakia assisted by OFM Managers and SEUC Social Workers.

The second group consisted of 11 homeless located in the Life isolatedd shelter in Jarna, 3O km from the large urban area of border city Bratislava. Anamnestic data on tobacco, alcohol, substance use and related ID have been recorded upon arrival in the weeks from March I5 to May I5, 2022

X square with Modified Mantel Haenszel tests with Yates Correction, in cell size less than IO with Fisher's - exact test have been used for comparison. In continuous variables Student's T test have been used where appropriate. The second group all underwent covid apart of one, in contrast the first part where post covid anamnesis was sporadic.

Results and Discussion

Commonest social pathology in the lst group, due to post trauma stress syndrome has been tobacco use increase. Concerning the basic interviews, before the conflict, only 6 of 98 but after conflict, 33 of 98 female clients escaping from war, were documented. Alcohol abuse was documented on one before and also after arrival, and subslance intravenous use in one before and after(NS). Two cases of new covid I9 have been related to the 2-3 days travel(3 percent) Survey of alcohol, substance abuse, depressive disorders

and other social, pathology in refugees and homeless in postcovid era: Two cohort nonrandomized survey in 1O9 clients in postCOVID-19 period

Increased alcohol and tobacco use is commonly reported after chronic stress exposed population, followed by depressive and anxiositi reactive syndromes. In the covid era, post covid syndrome is in the majority of cases accompanied by depression and anxiety as well. (2-9).

There was no difference in alcohol use before and after the event (admission, war versus homelesness). However, there was a huge increase in smoking in the refugee and migrant arm from 5 times from 6 to 33% (P O.O1 in t test). Abuse of other substances have been recorded sporadically, with no difference before and after admission. Surprisingly, only in one case, viral diseases related to substance use has been noted in each group, one case of HepC virus in Group II, and one case of HIV among refugees, however with long term anamnesis of years., both on antiviral tx.

Conclusions

In the group of posttraumatic and post conflict stress syndrome in the group of Ukrainian refugees and migrants, substance use or alcohol abuses has not been recorded as compensation of the acute stress. Surprisingly, in the group of homelessness, the occurrence of alcohol and tobacco abuse was not related with post covid syndrome, despite all but one undergoing symptomatic diseases during the first wave of the COVID I9 pandemic.

Good news is that both post trauma and post covid individuals, when sheltered, did not compensate their chronic stress with alcohol or substance use, maybe to decreasing acsess when institutionalized. However, tobacco use was reported to be dramatically increased in the first group despite decreasing acsess after institutionalization at the Francuiscan College, as one of the compensation mechanism probably due to mixed information or lack of data on their relatives/family members.

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References

1. MURGOVA A, POPOVICOVA M *et al* (2022) Among refugees of war, acute Posttrauma Stress syndrom and chronic PTS are leading. *CSWHI* vol 12.2022 vol 3.p 33.
2. BAKOS M *et al* (2022) Influence of anticancer treatement to the quality of life in cancer PTS. Clinical Social Work and Health Intervention. 2022.3.44.33.
3. PAVELKOVA J, SCHAVEL M, SKORCOVA J (2022) The issue of homelessness in young people. *Clinical Social Work and Health Intervention*. 12.2022.3.
4. DRGOVA J, BAKOS M, MURGOVA A, GALLOVA A *et al* (2022) Minimal occurence of TBC among migrants of war. *Clinical Social Work and Health Intervention*. 12.2022.1.14.
5. MASAN J, HAMAROVA M, LICHNER M, SMIDOVA M, TREBSKI K (2022) Specificities in the guidance of refugees from Ukraine. *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
6. ZAVIS M, OLAH M (2022) Ethical Challenge of Discerning Refugees from Economic Migrants: Critical Observations and Conclusions Regarding Slovak Capital Facing Huge Tide of Ukrainian Citizens Nowadays (Case Study), *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
7. KHAN N, HUSSAIN N, NAZ A (2022) Awareness, Social Media, Ethnicity and Religion: are they Resposible for Vaccination Hesitancy? A systematic Review with Annotated Bibliography Clinical Social Work and Health Intervention, No.4, Vol 13, 2022.
8. BUNDZELOVA K, HAMAROVA M, MURGOVA A, POPOVICOVA M, KRCMERY V, OLAH M, BRICHTA G, JACKULIKOVA M, KMIT I, HUNADYOVA S, VALLOVA J, VLADAROVA M, ROMAN L, BOZIK J, FRITSCH T, TORAN A (2022) Low occurence of Tuberculosis and HIV among Ukrainian immigrants of war at the border post in Uzhorod - Vysne Nemecke at point prevalence testing (note), *Clinical Social Work And Health Intervention*, No.4, Vol 13, 2022.
9. VALLOVA J, OLAH M, BUNDZELOVA K, HOCHMAN R, HUNADYOVA S, LACA P, VLADAROVA M, BERKA M, CZAR-

NECKI P, KRCMERY V, KMIT I, BUTZ M, DINKEL J (2022) Weakness period in food assistance as part of social work for Ukrainian migrants of war conflicts, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.

10. UHARCEK P, BEDNARIKOVA M (2021) The evolution of the system BI-RADS in diagnostic mammography. In: *Gynecology for practice*. Bratislava: A- medi management, s.r.o. 2021. ISSN 1336- 3425, 2021. Vol. 19, No 1, p. 43- 45.
11. BUNDZELOVA K, VSELICHOVA M, VALLOVA J, VLADAROVA M, HUNADYOVA S, KRCMERY V, FARKAS M, ROMAN L, BUJDOVA N, KMIT I, ZAKHARIAN M, DIXON J, KIANN J (2022) Social Work and Health Intervention in the Karabakh Region of Armenia during the war in 2019, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022
12. VLADAROVA M, VALLOVA J, HUNADYOVA S, KRCMERY V, KMIT I, BUNDZELOVA K, BYDZOVSKY J, BOZIK J, ROMAN L, BUJDOVA N, MIRWALD A, MUSCHIK A (2022) Destruction of socioeconomic, educational and health infrastructure including pipelines may led to cholera outbreaks in Mariupol and pother damaged towns in Ukraine, *Clinical Social Work and Health Intervention*, No.4, Vol 13, 2022.
13. BALUCHOVA B M (2022) The role of media in humanitarian interventions and relief campaigns on the example of Slovak nonprofits response to the conflict in Ethiopia, Clinical Social Work and Health Intervention, No.4, Vol 13, 2022.

Discussion on COVID-19 Prevention apart of Public Health: Several Judgments of national and international Courts Helps to prepare us for the next Wave of Pandemics (Letter to the Editor)

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Abstract:

This letter to the editor highlights other than just medical aspects of ongoing pandemics, just before the third/fourth wave of COVID-19, arriving back to the EU, having destroyed several economic and trade structures in China and Korea in recent months. However, we have some advantages in comparison to December 2019. First, (i) testing is widely available, accessible, cheap and more accurate. Second, vaccines are on the market (ii) and 4.5 billion of the whole population are vaccinated, (iii) Third two molecules of antivirals are registered for clinical use and finally (iv) several judications on both sides of the At-

lantic may help to protect the global and local Public Health. In this first letter, we have selected some - according to space - important judgments supporting the protection of health care on one side, and minimizing the side effect of pandemics to human rights, economic bills and legal structure of pandemic response.

To the editor:

Prof. Michael Costello and Prof. Dan West, experts in International Health and Public Health Law at the University of Scranton, the same where President Joe Biden graduated, published last 2 years in Clinical Social Work and Health Intervention several papers in economic, social and legal issues on COVID-19 pandemics in the US from other than Public Health views. Here we have selected some experiences from an EU legal perspective.

Restrictions on human rights during the time of COVID-19

The unexpected and unprecedented spread of the pandemic, as well as the novel nature of the disease, in an attempt to stem the tide of infections prompted many States to take urgent and drastic measures. From a human rights perspective, States have had to strike a balance between their positive obligation to protect their citizens' health, safety and well-being and their negative obligation not to disproportionately restrict citizens' freedoms.

At the regional and international level, States have derogated from, or "suspended" guarantees or rights contained in other human rights treaties including the *International Covenant on Civil and Political Rights*[3] and the *American Convention on Human Rights*. The UN Human Rights Committee has issued a Statement on derogations from the International Covenant on Civil and Political Rights in connection with the COVID-19 pandemic. It noted that several States had failed to formally submit any notification, despite adopting emergency measures that seriously affect the implementation of their obligations under the Covenant; and provided guidance to States on so doing.

Lockdown

The decision of *Terheş v. Romania*, no. 49933/20, 13 April 2020 concerned a 52-day general lockdown imposed by the authorities to tackle the COVID-19 pandemic. The Court found the application to be inadmissible. Under a state of emergency as applied in Romania, no movement outside the home was permitted, except in a certain number of listed circumstances and on production of a document attesting to valid reasons for leaving home. The applicant complained that this confinement measure, with which he had to comply, constituted a deprivation of liberty contrary to Article 5 § 1 (e) of the Convention. The decision is noteworthy as the Court found that the measure complained of had been imposed under a state of emergency, with the aim of isolating and confining the entire population on account of a public-health situation which the competent national authorities had deemed to be serious and urgent.

Freedom of assembly

Magdić v. Croatia, no. 17578/20, concerns the measures adopted by the Croatian authorities in the context of preventing the spread of the COVID-19 virus, including prohibitions on public gatherings comprising more than five people and the suspension of religious gatherings. The applicant alleges that the measures breached, *inter alia*, his right to freedom of religion and freedom of peaceful assembly.

The pending case of *Association of Orthodox Ecclesiastical Obedience v. Greece*, no. 52104/20 concerns the inability to judicially review a temporary prohibition on collective worship in the light of the pandemic on the grounds that the restriction was no longer in force when the application was examined by the domestic court. The Court has given notice of the application to the Greek Government and put questions to the parties under Article 6 § 1 (access to court) and Article 9 of the Convention.

Vaccination

Although not directly related to a COVID-19 vaccination scheme, the Court has dealt with compulsory vaccination of children against cer-

tain diseases in *Vavřička and Others v. Czech Republic* [GC], no.s 47621/13 and 5 others, 8 April 2021. The case concerned parents' general legal duty to vaccinate children against 9 well-known diseases. Parents who failed to fulfill this duty without good reason could be fined and non-vaccinated children were not accepted in nursery schools (an exception was made for those who cannot be vaccinated for health reasons). The Court found no violation of Article 8 (right to respect for private life) of the Convention.

In the decision of *Zambrano v. France*, no. 41994/21, 7 October 2021, the Court rendered inadmissible the applicant's complaints concerning legislation on the management of the public-health crisis caused by the COVID-19 pandemic. The Law introduced a transitional regime for lifting the public-health state of emergency and authorized the Prime Minister, among other measures, to limit travel and the use of public transport and to impose protective measures in shops. It also broadened the use of the health pass to other areas of daily life, such as bars and restaurants, department stores and shopping centers. The applicant relied on Articles 3, 8 and 14 of the Convention, and on Article 1 of Protocol No. 12. In his view, by creating and imposing a health pass system, the laws in place on the management of the public-health crisis caused by the COVID-19 pandemic amounted to a discriminatory interference with his right to respect for private life and were intended primarily to coerce individuals into consenting to vaccination. Although it was not necessary to decide the issue of the applicant's victim status, the Court noted that that the applicant had complained *in abstracto* about the unsuitability and inadequacy of the health pass system and other measures for managing the COVID-19 crisis without specifying their effect on his personal situation.

Without being more specific, he had not shown that any coercion had existed on him as a person who did not wish to be vaccinated: there was no general duty to be vaccinated.

On 31 March 2021, the Secretary General issued an Information document on Protection of human rights and the "vaccine pass". The document addresses the human rights considerations related to "vaccine passes". It reaffirms that vaccines are an essential part of the strategy to combat the pandemic which States are obliged to implement under international human rights law, but warns that the use of vaccination certificates for purposes other than strictly medical should be considered with the utmost caution. Such use could prevent the enjoyment of certain fundamental rights by individuals not holding the certificates; raise concerns about the protection of privacy and personal data; lead to an increase of criminal activities such as counterfeiting of vaccines or the issuing of false certificates, which would seriously compromise public health efforts.

The Chair of the Committee of Convention 108 and the Data Protection Commissioner of the Council of Europe have issued a Joint Statement on the right to data protection in the context of the COVID-19 pandemic (30 March 2020). It recalls that, while data protection can in no manner be an obstacle to saving lives, even in particularly difficult situations, data protection principles must be respected. The statement covers (i) general data protection principles and rules, (ii) processing of health-related data, (iii) large-scale data processing, (iv) data processing by employers, (v) mobile, computer data, and (vi) data processing in educational systems.

Freedom of expression

The Council of Europe's Committee of experts on media environment and reform (MSI-REF) has issued a statement on freedom of expression and information in times of crisis which underscores the importance of reliable journalism, based on the standards of professional ethics, to inform the public and to scrutinize the measures taken in response to the pandemic.

Financial damage to businesses

The pending case of *Toromag, S.R.O. v. Slovakia*, no. 41217/20 and 4 other applications concerns the issue of financial damage to businesses caused by the COVID-19 pandemic. The applicants were forced to close their business (fitness centers) by virtue of measures adopted by the Slovak Public Health Authority to prevent the spread of the virus. The applicants allege under Article 1 of Protocol No. 1 (peaceful enjoyment of possessions) that they have thereby incurred pecuniary damage and lost future income as well as clientele.

Positive obligations during COVID-19

Near the beginning of the COVID-19 pandemic, the European Committee of Social Rights issued a statement of interpretation on the right to protection of health in times of pandemic (21 April 2020). The statement urged State Parties to ensure that the right to protection of health under Article 11 of the European Social Charter was given the highest priority in policies, laws and other actions taken in response to a pandemic. The right to protection of health dictated that States Parties must: (i) take all necessary emergency measures in a pandemic; (ii) take all necessary measures to treat those who fall ill in a pandemic; (iii) take all necessary measures to educate people about the risks posed by the disease in question; (iv) implement precautionary measures; (v) be particularly mindful of the impact that their choices will have for groups with heightened vulnerabilities; (vi) protect the right of access to healthcare without discrimination; (vii) aim to achieve health equity; (viii) operate widely accessible immunisation programs; (ix) protect the right to protection of health not merely theoretically, but also in fact.

On 24 March 2021, the European Committee of Social Rights adopted a Statement on COVID-19 and social rights. With that statement, it aimed to highlight those Charter rights that are particularly engaged by the COVID-19 crisis. These are (i) employment and labor rights, including full employment and employment services; the right to a safe and healthy working environment; just working conditions, including fair remuneration; the right to organise and collective bargaining, gender equality and the world of work, and the rights

of migrant workers; (ii) social security, social and medical assistance and the fight against poverty and social exclusion; (iii) right to education; (iv) rights of different categories of people, namely children and families, women, older persons, and persons with disabilities; and (v) right to housing.

Conclusion

Surprisingly, most judgements came quickly enough to help the healthcare sectors both in the EU and the UK to protect public health, and the vast majority or all decisions (some are pending, but those were not selected in this contribution) are in favor of health protection upgrading the right not being infected by deadly disease upon other also important human rights. We will be interested in the opinions from the authors from other side of Atlantic (US, Canada and Brazil (three countries most heavily affected by pandemics, having their own judicature). (1-14)

However first discussions on equity or superiority the right for health care measurements, protecting individuals from death and postcovid syndrome, most similar to COVID-19, came from the US (court decisions of the superiority of public health against the right to education, and religious assembly) when in Bronx, Brooklyn and Philadelphia deadly outbreaks of measles killing dozens of children and parents being infected from unvaccinated children in 2018 from either orthodox Jewish, Amish, or Parent antivax groups. The decisions of Diocese of Brooklyn against NY Supreme Court or Amish Fraternity or Askenazi Family versus Pennsylvania or New York, historically very near to 2022 situation, are very consistent with European decisions, In addition they are historically chained with the first cases (California versus unvaccinated Chinese community in SFO refusing smallpox prevention and quarantine, 100 years ago) underlined the superiority of public health protection before individual or collective rights.

References

1. JUDICIAL SEMINAR (2022) *Human rights protection in the time of the pandemic: new challenges and new perspectives*, 28. Jan. 2022
2. SHAHUM A., MULAMA C., VASKO P., RUSNAK T., KMIT I., GULASOVA M., STACHON M., GIERTLIOVA D., KARVAJ M., BEDNARIKOVA M., BARKASI D., HENNEL D., BAKOS M., VLADAROVA M., NASIR J., KONOSOVA H., ROMAN L., ROMAN T., BOZIK J., BARTA R, MORTON D., KRCMERY V. (2022) Deadly synergy: between post covid and post trauma stress syndrome in areas of armed conflicts in COVID-I9 era (Note), *Clinical Social Work and Health Intervention*, No.6, Vol 13, 2022.

Public Health Law & The COVID-19 Pandemic (Letter to the Editor)

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Dear Editor

As the international community nears 3 years of the COVID-19 pandemic it seems appropriate to reflect on the importance of public health law as a tool in managing global health crises.

Most societies recognize a nation's police powers to protect its citizen's health and well-being. public health law is the mechanism utilized to direct a nation's health and social policies.

During the COVID-19 pandemic, public health law has been used to: regulate vaccination; contact tracing; quarantine; business operations; the provision of public education among other aspects of daily life.

While the operation of public health law seeks to protect a nation's population, critics argue that it impinges an individual right by restricting certain behavior. Policy makers would argue that those restrictions are necessary to protect the larger population from conditions that threaten its health.

Public health law in the United States derives its authority primarily from the 10th Amendment to the US Constitution and from an early 20th century US Supreme Court case *Jacobson v. Massachusetts*.

The 10th Amendment to the US Constitution is recognized as part of the Bill of Rights, comprised of the first 10 amendments which attempt to specify the respective fundamental rights of the federal government and 50 state governments. The 10th Amendment gives the individual states the governmental powers not given specifically to the federal government by the Constitution. This has long been interpreted to include giving the states the authority to take actions in public health emergencies.

Jacobson v. Massachusetts is a 1905 US Supreme Court decision in which the court upheld the authority of the State of Massachusetts to authorize local governments to undertake public health measures. The case involved a resident of Cambridge who questioned the municipality's right to require him to be vaccinated against smallpox or to pay a fine for failing to do so.

In addition to challenges claiming violation of individual and human rights, public health laws are often challenged on procedural grounds including the legal authority of specific regulatory agencies to issue public health directives. A well-developed body of national public health laws usually means that most such challenges will not succeed.

References

1. SIKUTA J, DRGOVA J, KMIT I, KRCMERY V (2022) Discussion on COVID-19 prevention apart of public health: Several judicates of national and international courts helps to prepare us for the next wave of pan-

demics, *Clinical Social Work and Health Intervention*, No.6, Vol 13, 2022.
2. RADI F, BUNDZELOVA K, OLAH M, MUSS C (2021) Late Psychosocial Consequences of Pandemics, from HIV to Covid In Clinical Social Work and Health Intervention Vol 12, No (2), pp 6-7; DOI: 10.22359/cswhi_12_2_15. ISSN 2076-9741.

Comorbidity of Migraine and Depression – Factors for an Efficient & Cross-sectoral Therapy

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Original Article

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Abstract:

Comorbidity is described as an illness that happens more frequently in connection with a specific condition than would be expected as a coincidental relationship in the general population. Depression, anxiety, stroke, epilepsy, sleep problems, and other pain illnesses are all common comorbidities with migraine. Furthermore, many common disorders occur concurrently (at the same time) with migraine, influencing therapy options (Anzola G.D, 1999). When individuals have comorbid or concurrent conditions, migraine therapy, and especially migraine prevention, can be difficult.

Introduction

Migraine is a condition that affects around 13% of the general population and is linked to a number of comorbid and concurrent disorders that affect treatment options. Concomitant (coexistent) diseases occur in the same individual at a rate that would be predicted by chance. Comorbid problems including depression, anxiety disor-

ders, epilepsy, sleep disorders, and stroke, as well as concurrent illnesses like hypertension and obesity, are all linked to migraine and impact its treatment. Migraine is a chronic and severe neurologic illness marked by recurrent occurrences of headache pain and accompanying symptoms (Tzourio C. 2000). Migraine affects around 1 in every 7 persons worldwide, with a frequency of over 1 billion people. It only trails lower back pain as the biggest cause of years spent disabled.

Migraine with depression and anxiety are often seen together. Although estimates vary, up to 47% of patients with migraine have concomitant depression, and up to 58% have comorbid anxiety, according to population-based surveys. Persons with chronic migraine (CM; defined as at least 15 headache days per month for the previous 3 months with migraine characteristics present on at least 8 days per month) had higher rates of depression and anxiety than people with episodic migraine (EM). Furthermore, among patients with EM, the presence of concomitant depression has been linked to an increased likelihood of progression to CM the following year (Meier C.M. 2008). Comorbid depression and migraine have a bi-directional relationship. This is in line with the growing body of data linking migraine, depression, and anxiety to hereditary factors. In general, both migraine and mental illnesses such as anxiety and depression are associated with exacerbated symptomatology for each condition. Persons with migraine who have concomitant depression and anxiety have higher health expenses and drug use than people with migraine who do not have these comorbidities. Psychiatric comorbidities in migraine can reduce quality of life (QoL) and enhance migraine's burden and impairment. Comorbid depression and/or anxiety can influence drug selection, preventative medication response, behavioral migraine therapy, and migraine treatment plan adherence. Separate and combined connections of depression and anxiety with disability in migraine sufferers have not been investigated; also, investigations of depression and anxiety with migraine disability have often not been adjusted for headache days.

Psychiatric and other comorbidities

Migraine is connected with a wide range of comorbidities. The next section focuses mostly on mental comorbidities; although biological processes are not well known, a bi-directional association between these illnesses is hypothesized. Migrainers are two to four times as likely than the general population to suffer from mood and anxiety problems. Despite their great incidence, psychiatric comorbidities are frequently overlooked. Migraine is associated with depression, which is a frequent comorbidity. Several studies have found that migrainers had considerably greater rates of depression than non-migraine research participants (47% vs. 17% & 40.7% vs. 16%). Patients with chronic migraine are more likely than those with episodic migraine to be diagnosed with depression (Barden N. 2004). According to a Web-based poll, 63.8 % of 2735 migraine patients, including 68 % with chronic migraine, experienced depression. Chronic migrainers are twice as likely than EM sufferers to be depressed. Depression is also a significant risk factor for migraine chronification.

Anxiety disorders such as generalized anxiety disorder, panic disorder, and particular phobias, as well as obsessive–compulsive disorders, are more frequent in migraine sufferers than depression. Patients with migraines are 4 to 5 times more likely to develop generalized anxiety disorder, and 10 times more likely to develop panic disorder (Santanello N., Buse D., 2010). Anxiety problems are more common in CM patients than in EM patients, and anxiety disorders are a strong predictor of chronification. Other psychiatric illnesses, including posttraumatic stress disorder (PTSD), are also more common among migraine sufferers than in the general population, and are more common in CM sufferers than in EM sufferers (30.3% vs. 22.4%). Psychiatric and other common comorbidities must be assessed in every migraine patient because they are likely to interfere with treatment outcomes, are risk factors for migraine chronification, and are linked to a higher level of quality of life impairment.

Multidisciplinary therapy's components

Patient education

Patient education is a crucial component of multidisciplinary treatment because it provides patients with a thorough grasp of headache pathogenesis, symptoms, and treatment options, inc-

luding acute and preventative headache treatment. Common problems and misunderstandings can be explored among a group of people who have had similar experiences. Patient education enhances pharmacological therapy compliance and adherence, improves quality of life, and lowers disability and migraine frequency.

Pharmacological treatment

To enable efficient multimodal therapy, acute and prophylactic treatment must, of course, be optimized. Because only half of individuals who get preventive therapy see a 50% reduction in their monthly attack frequency, 26 prophylactic medication must be re-evaluated and adjusted as needed. A consideration of the many alternatives for acute and preventive therapy would be beyond the scope of this paper. Patients with headaches may need to test a variety of medicines before finding the one that works best for them. Prophylactic therapy should be decided based on individual comorbidities and side effects in this regard.

Psychological treatment

Psychological therapy is an important part of a multimodal treatment plan. It is efficient in reducing the frequency of headache attacks as well as the illness load. Over the course of several years, there is a significant reduction in headache activity. Its goal, based on the biopsychosocial paradigm, is to identify and change influencing variables including: catastrophizing; fear avoidance; endurance/over-activity all of which can contribute to migraine maintenance.

History, psychological testing, and education are all part of the psychological evaluation. Patients get knowledge regarding the interplay of physical, psychological, and social elements in the development and maintenance of their pain as part of psychoeducation (biopsychosocial model). In addition, the impact of stress and pain coping mechanisms and lifestyle variables in the advancement of headaches is discussed. Relaxation therapy, biofeedback, cognitive behavioral therapy, and stress management are some of the evidence-based approaches for psychological treatment that can be used alone or in combination (Becker C., Brobert G.P., 2008). We assist patients in finding a psychotherapist and/or psychiatrist for additional therapy if they have a high level of impairment owing to headache and mental comorbidities.

Physiotherapy

Many migraine sufferers complain of musculoskeletal issues including neck discomfort, which is frequently cited as a "trigger" for migraines, and lower back pain. Physiotherapy can help with these issues, but it's important to remember that patients are more likely to respond to active techniques, so passive approaches like manual therapy or trigger point treatment should be avoided or used only in conjunction. Regular aerobic exercise can also help to minimize headache activity. In this regard, physiotherapists assess such musculoskeletal issues and aid in the development of an individualized therapy program that is most suited for each patient. Patients should be able to continue their active training on their own (Alehan F., Ozçay F., 2008). Although there is less evidence for the usefulness of physiotherapy, there is widespread agreement that combining it with other therapies in a multidisciplinary approach may be more effective.

Treatment of Migraine

The healthcare professional has access to a variety of effective acute and preventative pharmaceutical and non-pharmacological (ie, biobehavioral) treatments for migraine treatment. The major aims of treatment are to prevent attacks wherever feasible, treat them quickly and consistently with no recurrences, and restore the patient's capacity to function and HRQoL. Each patient's treatment should be tailored to their specific needs, taking into consideration factors such as the frequency and severity of migraine attacks, trigger factors, comorbidities, the patient's lifestyle, and personal preferences.

A lot of study has been done on migraine medication. Certain non-specific medications used for different pain diseases, including headache (e.g., aspirin, acetaminophen, non-steroidal anti-inflammatory drugs) and migraine-specific agents are the mainstays of acute migraine treatment (eg, ergotamine, dihydroergotamine, and the triptans). Treatment is raised throughout or within attacks in the stepped-care approach to acute care, starting with mild analgesics. If these treatments are ineffective, a combination of analgesics and antiemetics, or another medication,

may be attempted (Aamodt A. H., Stovner L. J., Langhammer 2007)

Migraine-specific medications are only used after other, less costly therapies have failed. The US Headache Consortium recommends a stratified-care approach, in which the choice of medication is influenced by the frequency and severity of migraine attacks, the degree of disability, associated non-headache symptoms like nausea, previous medication response, and the presence of any comorbid disorders. Aspirin, ibuprofen, butorphanol nasal spray, oral opiate combinations, dihydroergotamine nasal spray, and triptans are the medications with the best quality of evidence of effectiveness (Lipton R.B. 2010) (injectable, oral, and nasal spray).

Patients with moderate to severe migraines or milder headaches who do not react satisfactorily to non-steroidal anti-inflammatory medicines or a combination of treatments, such as aspirin, acetaminophen, and caffeine, might consider triptans (Andlin-Sobocki P., Jönsson B, 2005). According to health care experts, patients must understand how to use acute migraine medicines efficiently, and that overuse can increase the frequency and intensity of headaches as well as degrade therapeutic efficiency.

Healthcare providers should discourage patients from expecting the use of symptomatic medicines and put limitations on their use to prevent the development of medication overuse headache. Almost 40% of migrainers fit the requirements for preventive therapy, despite the fact that the majority of migrainers use acute medicine. Preventive therapy aims to decrease or eliminate migraine episodes, as well as the impact of recurrent attacks on the patient's HRQoL and degree of impairment, increase the efficacy of acute treatment, and, in certain cases, avoid the progression of episodic migraine to chronic migraine. Preventive medicines are frequently underutilized in people who would be good candidates and benefit from them. According to the American Migraine Prevalence and Prevention study, 43.3% of migrainers had never used a migraine preventive agent, despite the fact that 32.4% of them satisfied professional guidelines for considering it (13.1%) or being given one (19.3%). One factor for migraine undertreatment might be that healthcare workers are unaware of the good benefits of preventative medicines on migrainers' HRQoL Physicians can decide whether to explore or give preventative treatment by using AMCS II interviewing procedures to evaluate the number of migraine days and degree of impairment.

Conclusion

Despite the availability of excellent therapy and management options, migraine headache remains an under-recognized and undertreated neurologic condition. When health careproviders and patients effectively communicate about the burden of migraine, as indicated in treatment recommendations, care improves. Healthcare providers should assess the effects of migraine pain, disability, and impaired HRQoL on a regular basis to determine if patients are receiving successful therapy and whether further treatment techniques are necessary. Active listening, open-ended questioning, and the "ask-tell-ask" method are all techniques that healthcare providers can use to support good communication. Furthermore, a range of evaluation instruments and procedures are available for assessing migraine burden, HRQoL, and common comorbidities. PHQ-9 and Generalized Anxiety Disorder 7 may help measure depression and anxiety, 2 prevalent migraine comorbidities.

The MPQ-5 can aid in the selection of suitable individuals for preventative therapies. For treating acute attacks, avoiding future attacks, and enhancing the HRQoL of migraine sufferers, a range of effective medicines and empirically proven bio-behavioral therapies are available. Using assessment tools and excellent communication skills to accurately analyze individual patients' requirements will aid in the creation of the best treatment approach for them.

References

1. AAMODT A H, STOVNER L J, LANGHAMMER A, HAGEN K, ZWART J A (2007) Is headache related to asthma, hay fever, and chronic bronchitis? The Head-HUNT Study. Headache 47, 204–21210.1111/j.1526-4610.2006.00597.x [PubMed] [CrossRef] [Google Scholar].
2. ALEHAN F, OZCAY F, EROL I, CANAN O, CEMIL T (2008) Increased risk for coeliac disease in pediatric patients with migraine. Cephalalgia 28, 945–94910.1111/j.1468-

2982.2008.01630.x [PubMed] [CrossRef] [Google Scholar].
3. ANDLIN-SOBOCKI P, JONSSON B, WITTCHEN H U, OLESEN J (2005) Cost of disorders of the brain in Europe. *Eur. J. Neurol*. 12, 1–2710.1111/j.1468-1331.2005. 01202.x [PubMed] [CrossRef] [Google Scholar].
4. ANZOLA G P, MAGONI M D, GUINDANI M, ROZZINI L, DALLA VOLTA G D (1999) Potential source of cerebral embolism in migraine with aura. A transcranial Doppler study. Neurology 52, 1622–1625 [PubMed] [Google Scholar] https://www.medscape.com/viewarticle.
5. BARDEN N (2004) Implication of the hypothalamic–pituitary–adrenal axis in the physiopathology of depression. *J. Psychiatry Neurosci*. 29, 185–193 [PMC free article] [PubMed] [Google Scholar] https://www.nature.com/articles/s41582-021-00509.
6. BECKER C, BROBERT G P, ALMQVIST P M, JOHANSSON S, JICK S S, MEIER C R (2008) The risk of newly diagnosed asthma in migrainers with or without previous triptan prescriptions. Headache 48, 606–61010. 1111/j.1526-4610.2007.01030.x [PubMed] [CrossRef] [Google Scholar].
7. BIGAL M E, KURTH T, SANTANELLO N, BUSE D, GOLDEN W, ROBBINS M, LIPTON R B (2010) Migraine and cardiovascular disease: a population-based study. *Neurology 74*, 628– 63510.1212/WNL.0b013e 3181d0cc8b [PMC free article] [PubMed] [CrossRef] [Google Scholar https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2676125/
8. BIGAL M E, TSANG A, LODER E, SERRANO D, REED M L, LIPTON R B (2007a) Body mass index and episodic headaches: a population-based study. Arch. Intern. Med. 167, 1964–197010.1001/ archinte.167.18. 1964 [PubMed] [CrossRef] [Google Scholar].
9. BIGAL M E, LIPTON R B, HOLLAND P R, GOADSBY P J (2007b) Obesity, migraine and chronic migraine: possible mechanisms of interaction. Neurology 68, 1851–186110.1212/01. wnl. 0000262045.11646. b1 [PubMed] [CrossRef] [Google Scholar] https://journals.sagepub.com/doi/abs/10.1177/1534650121989812.
10. BOUSSER M G, CONARD J, KITTNER S, DE LIGNIERES B, MACGREGOR E A, MASSIOU H, SILBERSTEIN S D, TZOURIO C (2000) Recommendations on the risk of ischaemic stroke associated with use of combined oral contraceptives and hormone replacement therapy in women with migraine. The International Headache Society Task Force on Combined Oral Contraceptives & Hormone Replacement Therapy. Cephalalgia 20, 155–156 [PubMed] [Google Scholar] https://headachejournal.onlinelibrary.wiley.com/doi/full/10.1111/j.1526-4610.2007.00760.x.

Comparison of Different self-defense Sprays in the Hands of paramedics – simulation Study

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Abstract:

Pepper spray is a self-defense tool used to prevent or stop aggressive behavior by quick and temporary incapacitation of the aggressor. The main aim of this study is to compare the effect of 2 different tools – Flashlight spray (Tool 1) and a gun shaped pepper spray (Tool 2) for paramedics in Prague. We performed a simulated test of the use of the tools with 10 paramedics (5 men, 5 women; the average age was 28 years) – nobody had been educated in using the mentioned self-defense tools. Using pepper spray (Tool 1) is faster and safer than using a pepper gun (Tool 2). There were discovered a lot of negative factors

for recommendation for both of these tools: long time period for using against possible perpetrators; impossibility of the using in the space of ambulance. We found that neither tool is appropriate for paramedics.

Objective

The rate of occupational injuries among paramedics and other Emergency Medical Services (EMS) professionals is 8 times higher than the national average for all workers and twice as high as the rate for police officers (1). It seems that there is no occupational group with a higher injury or fatality rate than paramedics and EMS providers (2). The basic theories of violence include: frustration; social learning; a general pattern of violence; violence vs. non-violence; inequality; subcultural and ecological theory. Theories of violence, include: the state of "remaining marked for life"; "direct correlation between organizational effects and creating a safe environment"; EMS managers' self-awareness; and other contributing factors toward moderating violence must also be considered (3).

Although some safety measures are designed to reduce violence in emergency departments, few studies have focused on the pre-hospital setting, with its unpredictable and unstructured environment. Violence toward prehospital emergency professionals is an often-neglected topic (4). There is no complete understanding of the incidence of violence in the Czech Republic, nor are there recommendations for specific professional communities regarding the problem of violence and how to resolve it in the pre-hospital emergency care.

Pre-hospital and EMS providers are the first to respond to medical emergencies. A high prevalence of violence has been reported in a few studies, indicating the extent of the problem. It also seems that one factor contributing to inappropriate patient behavior may be the non-professional conduct of some cases was managed by Emergency Medical Services (5). The Prague Emergency Medical Services (PEMS) is an organization funded by the City of Prague (Czech Republic). Rescue teams respond to emergency calls from 20 stations that are strategically situated in various parts of Prague to ensure the availability of pre-hospital care within 20 minutes. According to long-term statistics, response times vary between 7 to 8 minutes and amount to less than 7 minutes in the most serious emergencies. 330–350 patients are attended every day, which translates into more than 111,000 cases per year. All activities are managed by the EMS Dispatch Center, where medical operators receive over 900 emergency calls per day. Specialized pre-hospital emergency care is provided by 5 rapid response vehicles (RRV – emergency vehicles carrying a physician) and 32 advanced life support vehicles (ALS – large ambulance vehicles with a paramedic and a driver – Emergency Medical Technician) and 1 helicopter. They operate in the rendezvous system, where a physician works together with an ALS crew in situations when a patient's life or health is in serious danger. This approach not only reduces the response time to a patient, but it also allows deploying physicians in an optimal manner because in the vast majority of cases (approximately 85%), patients are transported to a medical facility without the need for a physician assistance during the transport. This way, doctors are not unnecessarily tied up and can be dispatched to assist other patients. Currently there are only 6 physicians' crews for whole City of Prague (1.5 million inhabitants) (6).

In general, we can state that the paramedics and ambulances drivers of Prague EMS are most exposed to verbal violence (15% / week, 80% / month). 80% employees are exposed to the physical violence per year but only a few cases need any care in hospital after the incident. Most attackers are men and most violent incidents are happened during the night shifts. The documentation of hard physical violence is 90%, only 10% are an "easy" violent incident.

Management of Prague EMS devotes maximal support to employees in communication as a tool for de-escalation conflicts - except of pepper spray the paramedics in Prague EMS are trained in effective communication, self-protection with contact of violence people and perfect collaboration with state and municipal Police exists (7).

Pepper spray is a self-defense tool used to prevent or stop aggressive behavior by quick and temporary incapacitation of the aggressor. To

date, few studies have investigated pepper spray operational usefulness and its limitations (6). Paramedics of the PEMS have this product in gear for personal self-defense in critical situations without the presence of Police (only in cases of immediate danger) when there is physical violence from patients, relatives or bystanders.

The main aim of this study is to compare the effect of 2 different tools – Spray Flashlight TORNADO® (Tool 1) and a new self-defense tool for paramedics Pepper Defense Gun Piexon Guardian Angel® (Tool 2).

Spray Flashlight TORNADO® (Tool 1) with a flashlight takes the form of a special stream that acts more strongly and more stable than conventional sprays. It is not as sensitive to external conditions as wind or rain, which minimize the possibility of directing the liquid flow at the user. The alkaloid content of capsaicin (obtained from cayenne pepper) is up to 15%, which is not the case with other models. The effect of stream of liquid is 4 meters. This pepper spray is also equipped with a system that enhances protection in the form of a very powerful LED flashlight, which blinds the attacker, this utility gives the user more time to react or escape. The safety cap switches on the diodes and at the same time creates perfect protection against unexpected dispersion (8).

Pepper Defence Gun Piexon Guardian Angel® II (Tool 2) is a compact defense product that contains 2 cartridges with an effective tear-forming substance 10% OC PIEXOL. Thanks to its gun like shape, it allows quick pulling out and helps for intuitive use in risky situations where there is no risk of bad application, as can be the case, for example, with pepper spray (turning the nozzle against the defender itself). The range is up to 4 meters with a scatter of about 30 cm. The active substance is in the form of a liquid, which prevents excessive contamination in the area of use (there is no risk of hitting the defender himself). In use, the affected aggressor will be exposed to severe irritation of the respiratory tract, eyes and skin. The effects do not cause permanent damage to health and disappear within 45 minutes (9).

Design

Simulation pilot study.

Methods

We performed a test of the use of both tools with 10 new paramedics who were in adaptation process, as they did not have any special training in the use of self-defense sprays. We have measured several aspects:

a) The time it took to pull out Tool 1 & Tool 2 and aim at a target (and the difference in pulling the tool from the belt and from the pocket);
b) The time it took to pull out Tool 1 & 2 and to fire at the target (an actor started running towards the paramedics beside an obstacle without warning);
c) The distance needed to hit the aggressor;
d) The view of paramedics. We aimed the tools at paramedics and we evaluate their feelings if they felt: (a) comfortable (b) uncomfortable (c) fear (d) panic.

All the tests were video-recorded. The results were verified by paired T-test ($p < 0.05$).

Participants

Our sample was represented by 10 paramedics (5 men, 5 women; the average age was 28 years). Nobody had been educated in using the mentioned self-defense tools.

Results

The median time of pulling the Tool 1 from the belt was 2.54 seconds (IQR 1/3 – 2.46/2.79); from the pocket 3.49 seconds (IQR 1/3 – 2.85/4.35). The average time of pulling the Tool 2 from the belt was 3.04 seconds (IQR1/3 – 2.78/3.63); from the pocket 3.65 seconds (IQR1/3 – 2.96/4.12). Pulling the Tool 1 (pepper spray with flashlight) from belt and pocket was faster than using the Tool 2 (pepper gun) (paired T-test, $p = 0.0005$). The average time of pulling out the self-defense pepper spray (Tool 1) and firing at the target was 3.15 seconds (IQR1/3 – 2.78/3.46); The average time of pulling out the self-defense pepper gun (Tool 2) and firing at the target was 4.28 seconds (IQR1/3 – 4.05/4.63). Pulling and firing at target using Tool 1 was faster than using the Tool 2 (paired T-test, $p = 0.030$).

We tested the distance when the paramedics manage to hit running aggressors (actors) against them – nobody managed to hit running aggressors (actors) from the starting distance of 4 meters - respondents did not manage to react with the spray nor the gun. When we prolonged testing distance to 8 meters, 4 paramedics managed to hit crossing aggressors (2 men and 2 women and only by pepper gun – Tool 2); the distance when paramedics hit the crossing aggressors was 3 meters (5 meters took the reaching the Tool 2). The times to reach the Tool 1 and 2 strongly exceeded the times from first measurement.

From the view of qualitative aspects nobody from our testing group (paramedics) felt comfortable when we aimed tools against the paramedics. When we aimed Tool 1 against paramedics, 6 paramedics felt uncomfortable and 4 felt fear. When we aimed Tool 2 against paramedics 5 paramedics felt fear and 5 felt panic.

Discussion

Management of Prague EMS support their paramedics in prevention of violence in general – staff have regularly trainings in communication and self-defense as a tool for de-escalating conflicts, there are definable causes which are running only in strict collaboration with police, we analyze every conflict between crew and patients/their relatives – the pepper spray is used only as a protect product for critical situations without the presence of Police (only in cases of immediate danger) when there is physical violence from patients, relatives or bystanders.

After the offer to try also for this purposes a pepper gun we decided to compare these 2 tools at first by our study. The main aim of this study was to compare the effect of 2 different tools – Spray Flashlight TORNADO® (Tool 1) and a new self-defense tool for paramedics Pepper Defense Gun Piexon Guardian Angel® (Tool 2). After our measurement we can state that from the point of view of comparison of different Self-defense sprays in the hands of paramedics the Spray Flashlight TORNADO® (Tool 1) has unequivocally better usage – in this study a pepper spray was faster than a gun (time of pulling the from the belt and from the pocket).

According the aiming against aggressors the pepper gun has an advantage over peppers spray. When we tested the distance when the paramedics manage to hit running aggressors (actors) against them – we had to prolong testing distance to 8 meters (the range of both tools is up to 4 meters, but nobody from our respondents could react to crossing aggressor in an attack from 4 meters). After this reparation 4 paramedics managed to hit crossing aggressors (2 men and 2 women and only by pepper gun – tool 2); the distance when paramedics hit the crossing aggressors was 3 meters (5 meters took the reaching the Tool 2). But the times to reach the tool 1 and 2 strongly exceeded the times from first measurement. It was described that in a real scenario will ability to react on attack the same or longer than our measurement (10). The distance to hit against attacker of both tools is 4 meters, main difference is in the application – pepper spray makes a liquid shot as a "stream" and the pepper gun is the possibility of attack from a bigger distance, but it only shoots in one direction and the paramedic has only 2 projectiles (attempts). The pepper spray has also advantage of attack from a short distance, which can be used e.g. in the ambulance car. The Police Tornado pepper spray (Tool 1) was also equipped with a system that enhances protection in the form of a very powerful LED flashlight, which blinds the attacker that gives more time to react or escape.

The main disadvantage for both tools is risk injuries for paramedics when they don't strike the aggressors and there is risk when used in an ambulance space – risk of eye injuries. (11) Contact of the eye with OC causes redness, swelling, severe burning pain, tingling, lacrimation, and involuntary or reflex closing of the eyelids. Symptoms usually resolved within 1.5 to 2 hours of decontamination although mild chemises, corneal edema, or hyphemia could persist. (12)

We had also interest how patients could react they would see paramedics with a pepper gun. Nobody from our testing group (paramedics) felt comfortable when we aimed tools against the paramedics. When we aimed Tool 1 against paramedics, 6 paramedics felt uncomfortable and 4 felt fear. When we aimed Tool 2 against paramedics 5 paramedics felt fear and 5 felt panic. Our findings could be connected with conclusions of research aimed to find out that the high prevalence of guns is the primary driver of gun-related death and disability and that having fewer guns would undoubtedly result in fewer such adverse consequences (13).

In this test we confirmed that the using pepper spray from pocket or from the belt is faster than the pulling of pepper gun. None of our respondents managed to hit running aggressors (actors) from the starting distance of 4 meters and when distance was extendedd to 8 meters, only 4 paramedics managed to hit running aggressors (2 men and 2 women and only by pepper gun – Tool 2). The times to reach Tools 1 and 2 strongly exceeded the times from first measurement and in case of the distance 4 meters our paramedics did not manage to react neither with the spray gun. These results showed that even when the use of self-defense sprays is announced as easy with no special training needed the paramedics require more training to use it effectively. Our findings showed that pepper guns or spray are not suitable self-defense tools to resolve conflict with violent people. Thus the main effort might be placed in the area of communication, self-defense training for paramedics and steps for prevention the conflict, f.e. using the Brøset Violence Checklist (14).

Conclusion

We found that using pepper spray (Tool 1) is faster than using a pepper gun (Tool 2) in our simulation study about comparison of self-defense tools. The pepper gun is advantageous for a bigger distance, but only shoots in one direction with limitation to 2 shots. On the other hand, we also find that using these types of self-defense tools is connected with negative feelings on the side of potential aggressors, which always comes with pros and cons. More research and qualitative research on the use of different self-defense tools and the effect on aggressors will be needed to understand a whole process, effectiveness and safety of the use in pre-hospital care. Accordingly, after our findings it seems that the staff from Prague Emergency Medical Service cannot use effectively this self-protection equipment in case of physical attack (for personal self-defense in critical situations without the presence of Police such as physical violence from patients, relatives or bystanders).

References

1. MAGUIRE BJ, HUNTING KL, GUIDOTTI TL *et al*. (2005) Occupational injuries among emergency medical services personnel. Prehosp Emerg Care. 2005;9(4):405-11.
2. HAHN S, HANTIKAINEN V, NEEDHAM I *et al*. (2012) Patient and visitor violence in the general hospital, occurrence, staff interventions and consequences: a cross-sectional survey. *J Adv Nurs*. 2012;68(12):2685-99.
3. DI MARTINO V (2003) *Workplace violence in the health sector. Relationship between stress and workplace violence in the health sector.* Available at: http://www.who.int/violence_injury_prevention/violence/interpersonal/.
4. BIGHAM BL, JENSEN JL, TAVARES W, DRENNAN IR, SALEEM H, DAINTY KN, MUNRO G. (2014) *Prehosp Emerg Care*. 2014 Oct-Dec; 18(4):489-94. Epub 2014 May 15.
5. KNOR J, PEKARA J, SEBLOVA J, PERAN D, CMOREJ P, NEMCOVA J (2019) *Qualitative Research of Violent Incidents Toward Young Paramedics in the Czech Republic*. West J Emerg Med. 2020;21(2): 463-468. Published 2020 Feb 21. doi:10.5811/westjem.2019.10.43919.
6. EMS PRAGUE (2020) EMS Prague Basic information. [Cited 22 Aug 2020.] Available from URL: https://www.zzshmp.cz/ems-prague/basic-information/.
7. PEKARA J, SCHWARZ Z, MEJSTRIK A (2015) The experiences with violence and prevention of violence in The Prague Emergency Medical Service in years 2004 – 2014, In: Callaghan, Patrick & Oud, Nico & Bjørngaard, Johan & Nijman, Henk & Palmstierna, Tom & Duxbury, Joy. (2015). *Proceedings 9th European Congress on Violence in Clinical Psychiatry*.
8. SPY SHOP (2020) *Pepper spray with LED flashlight for self-defence Police Tornado*. [Cited 22 Aug 2020.] Available from URL: https://www.spyshop24.cz/peprovy-sprej-se-svitilnou-led-pro-sebeobranu-police-tornado-132.html.
9. GUARDIAN ANGEL (2020) Pepper Defense Gun Piexon Guardian Angel. [Cited 22 Aug 2020.] https://www.guardian-angel.com/en/
10. MILLER R (2011) *Facing Violence: Preparing for the Unexpected*. YMAA Publication Center; 1st edition (May 1, 2011), ISBN: 1594392137.

11. YEUNG MF, TANG WY (2015) Clinicopathological effects of pepper (oleoresin capsicum) spray. *Hong Kong Med J*. 2015 Dec;21(6):542-52. doi: 10.12809/hkmj154691. Epub 2015 Nov 6. PMID: 26554271.
12. ZOLLMAN TM, BRAGG RM, HARRISON DA (2000) Clinical effects of oleoresin capsicum (pepper spray) on the human cornea and conjunctiva. *Ophthalmology* 2000;107: 2186-9. Crossref.
13. GALEA S, ABDALLA SM (2019) The public's health and the social meaning of guns. *Palgrave Comm* (2019) 5:111 | https://doi.org/10.1057/s41599-019-0322-
14. SENZ A, ILARDA E, KLIM S, KELLY AM (2021) Development, implementation and evaluation of a process to recognize and reduce aggression and violence in an Australian emergency department. *Emerg Med Australas*. 2021 Aug;33(4):665-671. doi: 10.1111/1742- 6723.13702. Epub 2020 Dec 17. PMID: 33336468.

Electromagnetic Fields as a Health Risk Factor

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Original Article

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Abstract:

This study is a collection of findings of published articles from the Department of Medical Biophysics and Department of Public Health at the Jessenius Faculty of Medicine in Martin, Comenius University Bratislava (JFM CU) with the topic on epidemiology of electromagnetic fields. During 14 years, 13 principal publications were created, of which 11 studies deal with radio frequency signals from mobile phones (mainly GSM900 and GSM1800 standard); one study describes the construction of a new exposure system and the other deals with the effects of low frequency electromagnetic fields. The results showed that the electromagnetic fields can affect heart rate

variability both in humans and animals; increasing the activity of the parasympathetic or sympathetic nerve systems depending on place of body exposure (head or thorax, respectively); may cause disorders of heart rhythm; loss of concentration; headaches; and/or burning sensations in the ear area. Parameters of exposition were compared with the values issued by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). They had not exceeded the permitted limits. However, compared to data of the Bio Initiative Report, in some cases, our measured values exceeded their limits.

Introduction

The human body is constantly exposed to the electromagnetic field (EMF) from the environment. Solar activity, thunderstorms and the Earth's magnetic field are the natural sources of exposition. All technical man-made devices that produce electro smog are artificial sources. The massive development of science and technology in recent decades has caused a progressive increase in artificial sources, which significantly exceed natural sources in quantity and intensity and can be classified as the high and low - frequency EMFs [1]. Both the fields (pulsed or modulated) are bioactive, which means that they could have health impacts under both an acute and chronic exposure even at very low exposure levels.

High frequency (HF) EMFs (100 kHz- 300 GHz). Two decades ago has seen a dramatic increase of all means of mobile communications, which includes space signals, smartphones, and smart meters etc. radiating the HF EMFs. The number of mobile phones today is almost 8 billion users. The entire world population is exposed mainly to various radio frequency (RF) electromagnetic signals which are a part of the HF electromagnetic spectrum. The problem here is that the population has no knowledge on the exposure or the parameters of the received EMF. The scientific community should be interested in the impact on the public health of citizens. There are some data that confirm the harmfulness of exposure to EMFs and, conversely, those that completely deny these effects. The issue is even more serious and desirable to solve due to the development of new 5G networks and technologies that requirement to build more Base Stations, which is associated with higher exposure of residents to EMFs [2].

The most frequently discussed topics are mainly mobile phones and Wi-Fi routers, which are part of the RF EMFs with a frequency range from 100 kHz to 300 GHz in the electromagnetic spectrum. Detrimental biological effect of RF EMFs on living systems has been confirmed by world organizations. In 2011, WHO/International Agency for Research on Cancer (IARC) classified RF EMFs as possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer associated with wireless phone use [3,4].

Under acute exposition the human body responds to EMF with symptoms resembling the flu, such as loss of concentration, headache, muscle pain, general fatigue or insomnia, which are based on the thermal and/or non-thermal effects of EMFs. The first one is currently well known and acknowledged, however the effects of non-thermal radiation are underestimated.

Under chronic exposure of a body to HF EMF (even sub-limited i.e. non-thermal) taking longer time (weeks, months, years) the subjective symptoms may change in objective ones resulting in the electromagnetic hypersensitivity syndrome (EHS) and/or in a decrease in number of human sperm, fertility and immune responsiveness [2]. It is of interest that in experimental animals exposed to 1800 MHz used for GSM (Global System for Mobile Communications) signal had created iron deposits in brain tissue of rabbits accumulating just below a place of exposure [5]. Likewise, as reported by Hardel et al. [6, 39] frequent use of a mobile phone in everyday life can be a risk factor for malignant lymphoma in the central nervous system. Also the study by Crabtree et al. [7] considers that RF EMF from a mobile phone (power 1.563mW and 0.783mW) can disrupt the microbiota of human skin. However, RF EM signal was also used to solve health problems e.g. in cancer patients, where certain frequencies were found to block

the growth of cancer cells [8]. According to clinical studies RF EMFs can serve even as a safe and effective method for achieving soft tissue tightening in anesthetic medicine [9].

Some problems have arisen in respect to the health of a small, but very important fraction of the human population: children. This is even more important because mobile devices and cell phones may be seen in the hands of children as young as 1-3 years in age [2]. Children have a unique vulnerability to external adverse factors of the environment including the high and low frequency EMFs [1, 2]. Potential hazard of mobile communication seems to be related more to the non-thermal effects of RF EMFs.

A cellular phone delivers a power density of RF radiation that is 2 billion times greater than occurs naturally in the environment. The absorbed energy potentially could cause dangerous and damaging biological effects within the human brain [2]. It is known that the human head is a complex structure of many different tissue types. Each of the tissues - skin, bone, cerebrospinal fluid, fat, brain, dura, etc., absorbs and reflects RF energy in its own way. In addition, the human head is far from having a uniform shape, volume or structure. Therefore, the RF EMF interacts with the human head in a non-uniform way depending on the specific location of the brain areas/volumes. Humans and animals are now subjected to a variety of HF electromagnetic signals. Worse is that this situation is conducted without monitoring, and the possibility to produce any protections. In contrast the mobile communication industry creates newer tools in order to increase the speed of communications. Hundreds of Base Stations are constructed around the countries without the possibility for citizens to reduce their fast growth. Thus, billions of people are not informed about the fact that their homes and they themselves are subjected to the new and advanced technological developments, which under some occasions can be harmful for them [10].

ii) Low-frequency (ELF) EMFs (1 Hz to 100 kHz).

It is generally accepted that extremely ELF EMFs e.g. 50 and 60 Hz, can cause electrical current flows that may shock and even damage or destroy tissues. The sources are: railway or tram lines; indoor and outdoor electrical wiring; high voltage power lines heaters [1]; but also some medical electrical devices and even a pocket phone itself. Likewise as in high-frequency EMFs, biological effects of ELF EMFs divide the scientific community into those who believe in their harmful effect on living systems, and thus also consider them as public health problem, and those who do not it.

First evidence published in 1979 had determined the relation between the ELF EMFs and leukemia in children [11]. The number of studies on this topic increased when the IARC classified the ELF EMFs in Group 2B, as a possible carcinogen to humans. This classification remains up to now [4, 12]. Two decades of the study confirmed the association between ELF EMFs and childhood cancers, especially leukemia (13). However, lately published studies did not show consistent results to support the association between ELF EMFs and some types of "non-blood" cancers, e.g. gliomas [14]. It was also found that ELF EMFs were able to change the growth of yeast in a frequency dependent manner [15, 16]. Data obtained on humans reported, stress, anxiety, depression, sleep, heartbeat, and brain disorders as a result of long-term occupational exposure to ELF EMFs [17, 18].

Comparable to RF EMFs, also ELF EMFs were used for medical purposes. Some studies highlight the positive effects of low frequency magnetic field therapy, mostly in the rehabilitation of post-stroke patients, and a cancer treatment, mainly in combination with an anticancer drug [19]. In clinical practice magneto-therapeutic devices with frequency up to several hundred Hz, are commonly used for the treatment of musculoskeletal disorders, pain, post-traumatic conditions or damaged tissue [20, 21]. Thus, health risk factors and mentioned above findings are a source of concern for potential risks to public health during exposure to high and low frequency EMFs. The aim of our survey study is to bring and evaluate our principal research findings dealing with possible detrimental effects of EMFs on public health.

Work methodology and research methods

The study consists of scientific and full-text published articles created at Department of Medical Biophysics JFM CU over the last 14 years. All the articles were standardly revised and then

published in scientific journals with higher impact factors, mostly the Scopus and Web of Sciences. Our electromagnetic laboratory deals mainly with possible harmful effects of HF EMFs in students, experimental animals and model of brain phantom. Heart rate variability (HRV), temperature changes, changes in Fe^{2+} content in the brain as well as possible cancer changes in tissues were investigated. Recently, the laboratory has expanded its research also to ELF EMFs employing the human head phantom, similarly as in the case of high-frequency model. The model of phantom enables to measure an intensity, frequency and penetration of electromagnetic signals (high or low) into the brain and perform the particular computer simulations. In the phase of data collection and processing, emphasis was given on parameters such as frequency and intensity of electric stimulation, an exposure time, also distance from the source of EMFs. The studies seen in Results are listed in reverse chronological order – i.e. from the newest to the oldest.

Results

A total of 13 studies focusing on EMFs were carried out at JFM CU. The study was performed at the Department of Medical Biophysics under cooperation with Department of Public Health of the JFM CU between years 2009 and 2022 (Table 1).

Table 1 contains the name of author, year, measured parameters under specific conditions and principal findings of all studies involved in this study. 11 studies are related to RF EMFs, most of them analyze the effects of the GSM standard, where the frequencies 900 MHz and

Table 1 Studies dealing with EMFs or the biological effects of EMFs

Authors, years / Parameters and conditions	Principal findings
Misek et al. (2022) E-field measurement in the frequency range 880 - 960 MHz, the distance of EMF source from the village was 500 meters [22].	The authors focused on the distribution of hot-spots and EMF power near base transceiver stations. The measured values were below the ICNIRP limits, but according to the BioInitiative Report, they were above the safe limits.
Hamza Sladicekova et al. (2022) GSM and UMTS standards (825 MHz, 1760 MHz, 2109 MHz) on the human head phantom [23].	The study evaluated the effectiveness of protective accessories of head against RF EMF exposure. The textile protective accessory containing silver provided the best shielding (6-16 dB) compared to conventional caps (below 1 dB)
Hamza Sladicekova et al. (2021) ELF EMF (frequency 900 Hz), magnetic flux density 2.3 mT, electric current 2 A, exposure time 0- 8 h [24].	The results of study indicated that low-frequency EMF has inhibitory effects on the reproduction and growth of the yeast cells. After 8 hours, a significant decrease in the number of yeast cells was observed. The exposed sample had 1/3 less cells than the control sample.
Misek et al. (2020) 21 rabbits, the first group exposed to device generated RF EMF source (frequency 1788 MHz), the second exposed to the real RF signal from the base stations (frequency 1805 – 1870 MHz), intensity 160 V/m, exposure time 150 min. [25].	Two groups of rabbits were exposed to the signal generated by a device and real RF EMF signal, to evaluate the effects of RF EMF on HRV in rabbits. The result was an increase in HRV parameters associated with a lower heart rate, which is related to increased cardiac vagal control during exposure toRF EMF.

Authors, years / Parameters and conditions	Principal findings
Kohan et al. (2020)Measurement in a building covered by 3G, 4G & WiFi signals, two mobile phones were used for data transfer, distance between the mobile phone and the meter was 0.2 cm [26].	The authors focused on E-field intensities during data transmission based on GSM and WiFi. They concluded that the highest E-field values were found for the 4G network, but the limits were not exceeded.
Misek et al. (2018a) 46 healthy students, frequency 1788 MHz with intensity 54 ± 1.6 V/m, exposure time 18 min. [27].	The study shows that even short exposure to RF EMF has an effect on the autonomic nerve system. During the ortho-clinostatic test in lying position, parasympathetic nerve activity was significantly increased compared to sham-exposition.
Misek et al. (2018b) Faraday cage (the specimen area 150 x 250 mm), E-field percent deviation < 18 % [28].	The result of the study was to build an unique exposure cage with real GSM/DCS/UMTS signal taken from Base Station. This RF exposure system is used for experiments on living organisms (in vivo studies) & on cells e.g. bacteria & other microstructures (in vitro).
Misek et al. (2018c) Measurements in the city center, residential area, rural area & extra-village area, each micro-environment measured 20 times [29].	Distribution of RF EMF was investigated in 4 environments. 1.85 V/m was the highest measured value of intensity of E-field in a residential area. According to the ICNIRP guidelines, all values were below the limits, but According to BioInitiative Report, our measured values exceeded the limits.
Habinakova et al. (2017) 44 adolescents, frequency 1788.5 MHz & max. intensity 30 V/m, exposure time 6 min for each position around the head [30].	The study monitored radiated RF power levels around the head of adolescents. The temporal area connecting both ears had the highest absorption. Tachycardia, headache or fatigue appeared during exposure in some adolescents.
Spiguthova et al. (2015) / HF EMF exposure from mobile phone (GSM standard), measurement in shielded places of the grammar school [31]	The results showed that the radiation from the mobile phone increased significantly during phone calls in the shielded area of the grammar school. The shielded space had a higher power flux density of EMF than the unshielded space.
Spiguthova et al. (2014) HF EMF exposure, dosimetry, measurement performed at different places at high school [32]	The intensity values of electric & magnetic field increased in the classrooms of the school during the increased HF EMF exposure.
Jakusova et al. (2010) / GSM standard (900 MHz, 1800 MHz), mobile call longer than 6 min/day [1, 33]	The study confirmed the connection between the duration of a mobile call & a burning sensation around the ear, loss of concentration & sleeplessness.
Jakusova et al. (2009) / GSM standard (900 MHz, 1800 MHz) [1, 34]	Based on the questionnaire, 99.4% of students use a mobile phone & 44.5% call for more than 10 min/day. University students have sufficient theoretical information about EMF, but not about the safe use of mobile phones.

Abbreviations: E-field – electric field, DCS – Digital Cellular System, UMTS – Universal Mobile Telecommunications System.

1800 MHz belong to its frequency bands. One study deals with the effects of ELF EMFs and one study describes the construction of unique exposure system serving for experimental purposes (Table 1).

Discussion

The aim of our study was to show a progress made in research work on the biological effects of the HF and ELF EMFs and their health impacts on living systems. Our goal was to point out the diversity of workplace research that focuses on both types of EMFs. Most of our abovementioned studies (see Results) employ a common exposure parameter, mainly the frequency of 1800 MHz or its close value, which belongs to the frequency band for GSM 1800 standard of mobile communication. All published articles were properly discussed in

the journals. Here we will restrict just to the most important findings. We found that HF (RF) EMF affects variability of heart rate in rabbits; increasing the activity of the parasympathetic nerve activity under exposure of the head [25]; and sympathetic nerve activity after exposure of chest [26]; similarly as we proved in humans [27].

As for electric field intensity, value 1.85 V/m was measured in a residential area [22] and significant increases of the power flux density were regularly measured in the shielded areas [31, 32]. Our findings clearly demonstrate a possible detrimental effect of microwave radiation spreading from cell phones operating in shielded areas. In comparison e.g. with an electromagnetic radiation from helicopter during landing had a higher value of electric intensity of EMF reaching 7.68 V/m [35]. Pall [36] summarized the neurological symptoms that are most often reported after exposure to RF EMF: sleep disturbances; insomnia; headache; fatigue; loss of concentration. It is not surprising that the probands included in our studies after exposure to GSM 1800 also had the similar health symptoms [30 ,33, 34] due to the biological effects of microwave radiation from cell phones. The integration between the mobile devices, base stations emerging advances in mobile phone technology, including recent 5G modalities opened the discussions on the potential risk for the biosphere.

Unfortunately, the scientific, medical, and public health communities, after more than a quarter of century of discussions, still do not have a common opinion on the issue of if, and to what extent, the EMF from mobile communications represents a hazard for Public health.

What is even worse, the new 5G mobile technology is being widely employed into a society even before the development of appropriate industrial standards [2]. It can be mentioned that all of the indicated studies in our survey, where intensities of electric field were measured, did not exceed the allowed ICNIRP limits. However, according to limits given by the BioInitiative Report they were exceeded in some of our studies [22, 29]. According to the limits set by the BioInitiative Report [38], intensities of electric field above 0.1 - 0.15 V/m for the frequency range 400 - 2000 MHz are considered as a risky value, whereas for ICNIRP it was 58.354 V/m (limits of ICNIRP are valid for Slovakia, too).

It is obvious that safe limits of exposure given by ICNIRP in 1998 (and updated in 2009) are too high, however still valid, not reflecting the latest scientific data. Even after update no changes in the safe limits for the specific frequency range were employed. ICNIRP limits consider only thermal effects, despite the fact that many scientific groups, including ours, proved an existence of non-thermal effects, as well. As to low frequency EMFs, we proved an inhibitory effect on yeast growth [24]. The same effect was confirmed by another study [37], where yeast of the same species after exposure to ELF EMF had a reduced number of cells and their growth was slower. It is interesting that in addition to RF EMF exposure during cell phone call, the human body is also exposed to extremely low-frequency EMF from cell phones and practically of all electronic equipment [10, 39]. This seems to be another goal for our interest, looking for extremely ELF of electric and magnetic fields during phone calls.

It is generally accepted that humans and animals are exposed at a same time to high and low frequency EMFs with their electric and magnetic components. It seems that different frequency of EMF exposure, even at lower intensities but with longer term of their duration; pulse wave form of radiation from Base Transceiver Stations; polarization; direction; modulation of signal; number of “hot spots” in signal trajectory; distance from the source of radiation; spreading of signal in shielded or not shielded objects; and another

physical entities; seems to be crucial for biological effects of EMF exposure (stimulatory or inhibitory) [10]. In order to properly elucidate the biological effects of ELF and HF EMFs on living subjects at various frequencies and intensities further experiments are needed. From the view of Public Health the group of people which needs higher protection against EMF radiation includes babies, elderly people, school children, teenagers and professionals. Thus, the problem of electromagnetic exposure is complex and has common health and social-economy impacts.

Conclusion

Principal studies of this survey study from the Department of Medical Biophysics under cooperation with Department of Public Health of the JFM CU in Martin showed possible detrimental effects of HF and ELF EMFs on humans and animals. Either the studies dealt directly with the subjective feelings of the probands after EMF exposure (questionnaire form), or take into account the measured values of frequency and electric intensity of EMF, which were compared with the permitted limits. Probands after exposure described: feelings of ear burning; loss of concentration; stress; anxiety; depression; heartbeat disorder; and sleeplessness. Exposure to HF EMFs in shielded areas (resembling the effect of Faraday cage) can significantly increase the flux density of electric intensity of EMF, and are harmful to health. Serious research in this area requires a complex study of physical, biological and social phenomena, and their relationship for effective control and support of Public Health.

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References

1. JAKUSOVA V (2009) *Ultraviolet Radiation and Mobile Communication: physical properties, biological effects and health protection*. Bratislava: Samosato, 2009. (Slovak).
2. MARKOV M (2019) *Mobile Communications and Public Health*. Boca Raton, Florida: CRC Press, 2019.
3. IARC (2013) *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. Non-Ionizing Radiation, Part 2: Radio frequency Electromagnetic Fields*. France, Lyon. 2013. Vol. 102. 405-419.
4. IARC (2011) *IARC classifies Radio frequency electromagnetic fields as possibly carcinogenic to humans*. IARC, 2011 [cit. 2022-06-15]. Available from: https://www.iarc.who.int/wp- content/uploads/2018/07/pr208_E.pdf .
5. KOPANI M, FILOVA B, SEVCIK P, KOSNAC D, MISEK J, POLAK S, KOHAN M, MAJOR J, ZDIMALOVA M, JAKUS J (2017) Iron deposition in rabbit cerebellum after exposure to generated and mobile GSM electromagnetic fields. *Bratislava Medical Journal*. 2017. 118 (10): 575-579.
6. HARDELL L, CARLBERG M, KOPPEL T, NORDSTRÖM M, HEDENDAHL L K (2020) Central nervous system lymphoma and radiofrequency radiation - A case report and incidence data in the Swedish Cancer Register on non-Hodgkin lymphoma. *Medical Hypotheses*. 2020. 144:110052.
7. CRABTREE D P E, HERRERA B J, KANG S (2017) The response of human bacteria to static magnetic field and radiofrequency electromagnetic field. *Journal of Microbiology*. 2017. 55(10): 809 – 815.
8. ZIMMERMAN J W, JIMENEZ H, PENNISON M J, BREZOVICH I, MORGAN D, MUDRY A, COSTA F P, BARBAULT A, PASCHE B (2013) Targeted treatment of cancer with radiofrequency electromagnetic fields amplitude-modulated at tumor-specific frequencies. *Chinese Journal of Cancer*. 2013. 32(11): 573-581.
9. DAYAN E, BURNS A J, ROHRICH R J, THEODOROU S (2020) The Use of Radio frequency in Aesthetic Surgery. *Plast Reconstr Surg Glob Open*. 2020. 8(8):e2861.
10. BELYAEV I (2019) *Health effect of chronic exposure to radiation from mobile communication*. In Markov M (2019) Mobile Communication and Public Health. Boca Raton, Florida: CRC Press, 66-92.
11. WERTHEIMER N, LEEPER E (1979) Electrical wiring configurations and childhood cancer. *Am J Epidemiol*. 1979. 109(3):273-284.

12. IARC (2002) *IARC Monographs on the evaluation of carcinogenic risks to humans. Nonionizing radiation, Part 1: Static and extremely low-frequency (ELF) electric and magnetic fields*. France: Lyon, 2002.
13. ICNIRP (2010) *Low Frequency. ICNIRP,* 2010 [cit.2022-06-16]. Available from: https://www.icnirp.org/en/frequencies/low-frequency/index.html.
14. CARLBERG M, KOPPEL T, AHONEN M, HARDELL L (2018) Case-control study on occupational exposure to extremely low-frequency electromagnetic fields and the association with meningioma. *Biomed Res Int*. 2018. Jan 3;2018:5912394.
15. BARABAS J, RADIL R, MALIKOVA I (2015) Modification of S. cerevisiae growth dynamics using low frequency electromagnetic fields in the 1-2 kHz range. *Biomed Res Int*. 2015. (2):694713.
16. RADIL R, BARABAS J, JANOUSEK L, BERETA M (2020) Frequency dependent alterations of S. Cerevisiae proliferation due to LF EMF exposure. *Advances in Electrical and Electronic Engineering*. 2020. 18(2): 99-106.
17. TIRPAK A (2011) *Electromagnetizmus*. Bratislava: IRIS, 2011. 710 p. ISBN 9788089238460
18. HOSSEINABADI M B, KHANJANI N, EBRAHIMI M H, HAJI B, ABDOLAHFARD M (2019) The effect of chronic exposure to extremely low-frequency electromagnetic fields on sleep quality, stress, depression and anxiety. *Electromagn. Biol. Med*. 2019.38(1): 96-101.
19. CICHON N, CZARNY P, BIJAK M, MILLER E, ŚLIWINSKI T, SZEMRAJ J, SALUK-BIJAK J (2017) Benign effect of extremely low-frequency electromagnetic field on brain plasticity assessed by nitric oxide metabolism during post stroke rehabilitation. *Oxid Med Cell Longev*. 2017.2181942.
20. MANSOURIAN M, FIROOZABADI M, HASSAN ZM (2020) The role of 217-Hz ELF magnetic fields emitted from GSM mobile phones on electro-chemotherapy mechanisms. *Electromagn. Biol. Med*. 2020. Jul 2;39(3):239-249.
21. HUANG P, XU L, XIE Y (2021) Biomedical Applications of Electromagnetic Detection: A Brief Review. *Biosensors*. 2021. 11(7).
22. MISEK J, LAPOSOVA S, HAMZA SLADICEKOVA K, JAKUSOVA J, PARIZEK D, JAKUSOVA V, VETERNIK M, JAKUS J (2022) Measurement of Base Transceiver Station Exposure in the Extra-Village Environment – A Pilot Study. *Acta Medica Martiniana*. 2022. 22(1):15-23.
23. HAMZA SLADICEKOVA K, MISEK J, JAKUSOVA V, ULBRICHTOVA R, VETERNIK M, PARIZEK D, JAKUS J (2022) Attenuation properties of health protection accessories during mobile phone exposure on the human head phantom. *Przegląd Elektrotechniczny*. 2022. 98(8): 63-8.
24. SLADICEKOVA K, BERETA M, MISEK J, PARIZEK D, JAKUS J (2021) Biological effects of a low-frequency electromagnetic field on yeast cells of the genus Saccharomyces Cerevisiae. *Acta Medica Martiniana*. 2021. 21(2): 34-41.
25. MISEK J, VETERNIK M, TONHAJZEROVA I, JAKUSOVA V, JANOUSEK L, JAKUS J (2020) Radiofrequency Electromagnetic Field Affects Heart Rate Variability in Rabbits. *Physiological research*. 2020. 69(4): 633-643.
26. KOHAN M, SPRONGLOVA M, VISNOVCOVA N, MISEK J, SPANIKOVA G,JAKUSOVA V, JAKUS J (2020) Monitoring of data transmission and changes in values of electromagnetic field in living environment. *Communications*. 2020. 22(1): 71-6.
27. MISEK J, BELYAEV I, JAKUSOVA V, TONHAJZEROVA I, BARABAS J, JAKUS (2018a) Heart rate variability affected by radiofrequency electromagnetic field in adolescent students. *Bioelectromagnetics*. 2018a. 39(4): 277-88.
28. MISEK J, VOJTEK J, VETERNIK M, KOHAN M, JAKUSOVA V, SPANIKOVA G,BELYAEV I, JAKUS J (2018b) New radiofrequency exposure system with real telecommunication signals. *Advances in Electrical and Electronic Engineering*. 2018b.16(1): 101-7.
29. MISEK J, LAUKOVA T, KOHAN M, VETERNIK M, JAKUSOVA V, JAKUS J (2018c). Measurement of Low-level radio frequency electromagnetic fields in the

human environment. *Acta Medica Martiniana*. 2018c. 18(2): 27-33.
30. HABINAKOVA H, JAKUSOVA V, KOHAN M, MISEK J, JAKUS J (2017) Measurement of the values of radio frequency electromagnetic fields around the head of adolescents. *Lékař a technika*. 2017. 47(2): 60-7.
31. SPIGUTHOVA D, HABINAKOVA H, MISEK J, JAKUSOVA V, JAKUS J (2015) Measurement of parameters of electromagnetic fields during mobile communication in the school environment. *Lékař a technika*. 2015. 45(4): 122-8.
32. SPIGUTHOVA D, HABINAKOVA H, JAKUSOVA V, JAKUS J (2014) Exposure of adolescents to electromagnetic fields. *Folia Medica Cassoviensia*. 2014.69(1-2): 29-31. JAKUSOVA V, POLIACEK I, OSINA O, VALACH M, JAKUS J (2010) Mobile communication - possible risks and health protection of university students. *Acta Medica Martiniana*. 2010. 7(2): 3-10.
33. JAKUSOVA V, KILIKOVA M (2009) Mobile communication and university students. *Kontakt*. 2009. 11(1): 178-86.
34. MICHAŁOWSKA J (2022) Prediction and Assessment of Exposure to Electromagnetic Field During a Helicopter Flight. *Przegląd Elektrotechniczny*. 2022. 98(1): 96-99.36.36.
35. PALL M L (2016) Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression. *J Chem Neuroanat*. 2016. 75(Pt B): 43-51.
36. NOVAK J, STRASAK L, FOJT L, SLANINOVA I, VETTERL V (2007) Effects of low-frequency magnetic fields on the viability of yeast Saccharomyces cerevisiae. *Bioelectrochemistry*. 2007. 70(1): 115-121.BioInitiative (2012) The BioInitiative Report 2012. *A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Fields (ELF and RF)*. BioInitiative 2012 [cit. 2022-07-20]. Available from: https://bioinitiative.org/
37. HARDELL L, SAGE C (2008) Biological effects from electromagnetic field exposure and public exposure standards. *Biomedicine& Pharmacotherapy*. 2008. 62(2): 104-109.

Retail Pharmacies are not just any Businesses – The lack of Public Discussion about the Death of Pharmacies (Letter to the Editor)

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Abstract:

Retail pharmacies have been declining in regard to physical stores as well as value as perceived by the society. Even in the face of their declination there are little amendments or implementations made to avert this, most have turned out to be ineffectual to the occurrence. Alongside primary healthcare facilities such as hospitals, pharmacies can offer a decentralized healthcare system whereby they can divert some of the healthcare services and assist in the development of an effectual healthcare system. To create an effectual healthcare system former policies have to be altered and new ones which promote quality and affordable healthcare.

"Retail pharmacies are not just any businesses – The lack of public discussion about the death of pharmacies"

Pharmacy is a health science tasked with the responsibility of discovering, producing, and determining safe and effective use of medications and drugs. Pharmacies are retail stores or hospital dispensaries where medical drugs are prepared and vended. Medically and health wise, pharmacy is a crucial aspect in the practice of medicine and in offering of health services,[1] however, pharmacy practice is unheeded and paid little attention (Qato et al., 2017). The existence and significance of pharmacies is overlooked in terms of awareness and interest with little discourses about the subject among the public.

Decline in Pharmacies

The decline on pharmacies is due to various reasons which range from non-compliance to medical prescription, unregulated markets, high operation costs, and low reimbursement. There are also instances in which certain regulations have instigated the closure of pharmacies due to the adverse impact on operations related to pharmacy.[2] Such is a case in Germany in which since 2009 there has been a steady decline in the number of pharmacies due to particular legislations[3] imposed on the pharmaceutical sector in the country. Systems such as the Statutory Health Insurance in Germany is one of the reasons the region has experienced a decline in the number of pharmacies. This system entails a number of insurance policies and firms (Busse et al., 2017) and are in a competitive environment due to the country's medical healthcare system, the Bismarck Healthcare model. In 2007, the country's legislators passed a bill that made it mandatory that a pharmacy had to offer a negotiated and agreed prescription (drug) in accordance to an agreement to a health insurance fund[4]. This adversely impacted the pharmaceuticals as it restricted the scope of operations in terms of resources and market. In addition, pharmacies had to accept a forced discount on medicines and a reduction in the variety of products that are reimbursed by statutory health insurance.

Pharmacies are at times unnotable in terms of their significance. In a circumstance in which a medical products consumer has to make a choice on where to get the medical supplies, they may opt for online or other pharmacy stores with either cheaper drugs or due to a recognized brand name.[5] The preference of the consumers directly influences the sales performance and market performance of pharmacies and if great loss is incurred there is high risk of the closure of a pharmacy retail store.

If the regulations or prevailing healthcare policies in a region limited the operations of the pharmaceutical sector, the pharmacies would indeed deteriorate. According to Müllerschön et al.,
(2019), in Germany whereby health insurance policies is implemented austerely, it has a rebound effect on the pharmaceutical sector. This eventually results to a decline of revenue attained by the retail pharmacies therefore if not substantial there will be not enough funds to run the operations of the stores.

Pharmaceutical competition is one of the reasons which has resulted to the decline of pharmacies. Other than retail pharmacies, there are in many countries chain or online pharmacies which also offer the same services (Pariyal et al., 2020). The various and multiple pharmacy outlets and dispensaries offer similar services resulting in high competition in the pharmaceutical market. Striving to attain the highest possible

[1] The Trustees of Princeton University. *Health Care Reform: Learning from Other Major Health Care Systems | Princeton Public Health Review*. Princeton University.pphr.princeton.edu

[2] Gaebert, T., & Staňková, M. (2020). Efficiency Development in the German Pharmaceutical Market. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *68*(5), 877-884.

[3] Resulted to the increase in competition.

[4] U.S. National Library of Medicine. (2018, February 8). *Health care in Germany: The German health care system*. InformedHealth.org [Internet]. www.ncbi.nlm.nih.gov

[5] Krinke, K., Borchert, K., Braun, S., & Mittendorf, T. (2017). The impact of patient preference studies in the German healthcare system. *Value in Health*, *20*(9), A690.

customer satisfaction, these stores often face competition from each other with private medical institutions offering high competition due to their services while retail stores have a competitive advantage in regard to price of prescriptions, at least in countries facing a part privatized pharmaceutical market.

The quality of services offered at pharmacies is in contention in that there are reports that indicate the services may not be substantial. According to a report by Langer et al., (2018), advice offered at pharmacies on acute diarrhea was found not to be substantial attesting to the questionability of the pharmacies. Such a case contributes to the decline of pharmacies in that the quality of services and medical products offered are questionable and this develops grounds from which the pharmacies are criticized.

Pharmaceutical products pricing is a key issue in the analysis of the cause of decline of pharmacies. In the US, pricing is subjected more to negotiation than regulations hence pharmacies can reap more profits from their sales. In comparison to Germany whereby pricing is done in a cost-sharing approach[6] limiting the profit range which pharmacies could have gained through sales. This limits revenue attainment and the low-profit margin instigates exit of pharmacies from the market resulting in the decline in the number of retail pharmacies.

Disregarding of the Decline

Despite the immense decline of pharmacies, there is little attention by the public concerning the issue. It can be argued that of the reasons of the public's lenient reaction to the decline of pharmacies, perception is a key concern.[7] The view of the public on the significance of pharmacies is fundamental in that it affects the public's reactions to concerns related to the pharmacies. This perception will determine the significance of the pharmacies to the public as patients and if not substantially vital, may not pay attention to the decline; what is currently ensuing.

Perception of the pharmacies' significance as well as the pharmacists is an influential factor in the determination of the gravity of the decline of the pharmacies to the public. In a research on the perception on pharmacies and pharmacists documented by Ali et al., (2019), revealed that the significance and value of the community pharmacies was known to the public but with concerns on some aspects of the operations undertaken such as privacy concerns on the status of a patient.[8] In addition to this, there is also a perception that for a more detailed and comprehensive medical advice, a doctor rather that a pharmacist will be more effectual.[9]

'Patient oriented or sales oriented' is a common query by the public in regard to the perception of pharmaceutical operations. In Europe, UK had established and advanced its pharmaceutical operations in that they run on a 7 day-weekly basis to offer services to patients. Relating to the same instance in Germany, the country's pharmacies seem to be underdeveloped with high potential to improve its pharmaceutical operations. If perceived to hold an emphasis on profits rather than services the pharmacies lose face (Nunes et al., 2017). And in Germany where healthcare is a privatized deal, the pharmacies are highly probable to be perceived to be more profit oriented from the sales instead of quality service oriented to patients.

Regions in which the Beveridge healthcare model is applied tend to have higher pharmacy performance compared to a country such as Germany which utilizes the Bismarck healthcare

[6] *Reference Pricing in Germany: Implications for U.S. Pharmaceutical Purchasing*. Reference Pricing in Germany: Implications U.S. Drug Purchasing | Commonwealth Fund.www.commonwealthfund.org

[7] Ryan, B. L., Brown, J. B., Tremblay, P. F., & Stewart, M. (2019). Measuring Patients' Perceptions of Health Care Encounters: Examining the Factor Structure of the Revised Patient Perception of Patient-Centeredness (PPPC-R) Questionnaire. *Journal of patient-centered research and reviews*, *6*(3), 192.

[8] Celdrán, A. H., Pérez, M. G., Clemente, F. J. G., & Pérez, G. M. (2017). Preserving patients' privacy in health scenarios through a multicontext-aware system. *Annals of Telecommunications*, *72*(9), 577-587.

[9] Wei, D., Xu, A., & Wu, X. (2020). The mediating effect of trust on the relationship between doctor–patient communication and patients' risk perception during treatment. *PsyCh journal*, *9*(3), 383-391.

system. This is because the Beveridge model is patient targeted and results to a reduction in the costs incurred when receiving healthcare services.[10] The reduced costs result to more disposable funds which may be utilized in the purchase of pharmaceutical products from pharmacies. In Germany, due to the Bismarck's' model policies,[11] healthcare is offered by privatized institutions which may be quite expensive discouraging the public from wanting to receive healthcare services as privatized institutions have relatively high cost medical products. This makes the public with a large population who do not seek out these services rule the issue as irrelevant and insignificant in regard to the impact on them. There is a concern on trust and reliability of community pharmacies. The trust and reliability that the public which acts as the market of the products offered by pharmacies hold is influential in the attention towards the pharmacies.[12] This is because in addition to privacy, quality of products and services offered is accountable and liable to evaluation by the public (Pelser, 2018). This issue being a major concern gives little attention and being a key aspect of the pharmacies, influences the overall attention that pharmacies receive from the public.

Attempts to avert the Circumstance

In Germany, the government imposed certain regulations in a bid to instigate competition among the pharmacies with the aim to increase the quality of the pharmacies in terms of services, products offered, and cost of charges.[13] The Bismarck healthcare system which the company utilizes funds healthcare services from income-related contributions making it relatively expensive in comparison to other countries such as the US (Gerlinger & Schmucker, 2009). To avert this in relation to also pharmaceuticals due to the link between health insurance firms and drugs offered at the pharmacies, the government passed legislations which would increase the competition in a bid to instigate a decrease in costs charged on the products and services.[14] More pharmacies are operating via online services whereby transactions are facilitated by e-commerce in which IT is integrated and utilized in the pharmaceutical operations.[15] This has resulted in a decline in face-to-face communication which has severed customer-seller relationships such as consumer loyalty (Ilardo & Speciale, 2020). By regulating and situating that some products and services will not be offered via online platforms, governments have attempted to halt the decline of pharmacies.

Policies and practices have been established and implemented to foster the position of pharmacy in the healthcare sector. The shift in policy is that pharmacies could offer medical products in relation to chronic diseases in collaboration with primary health services is an example of such an instance (Mubarak et al., 2021). Such an implementation increases the value and significance of pharmacies in the healthcare sector in that they offer vital medical products and services. Community pharmacies profit from such undertakings in that they gain reputation[16] in their diligence in offering healthcare services; increases significance of pharmacies.

[10] By catering for most of the costs, patients spend less on receiving healthcare services.

[11] *Health Care Systems - Four Basic Models*. Health Care Systems - Four Basic Models | Physicians for a National Health Program.www.pnhp.org

[12] Jobin, J., Irwin, A. N., Pimentel, J., & Tanner, M. C. (2018). Accuracy of medication histories collected by pharmacy technicians during hospital admission. *Research in Social and Administrative Pharmacy*, *14*(7), 695-699.

[13] U.S. National Library of Medicine. (2018, February 8). *Health care in Germany: The German health care system*. InformedHealth.org [Internet]. www.ncbi.nlm.nih.gov

[14] Heinsohn, J. G., & Flessa, S. (2013, October 10). *Competition in the German pharmacy market: an empirical analysis*. BMC health services research.www.ncbi.nlm.nih.gov

[15] SV; G. G. E. B. J. N. G. E. C. *Integration of pharmacy into the computerized problem-oriented medical information system (PROMIS)--a demonstration project*. American journal of hospital pharmacy. https://pubmed.ncbi.nlm.nih.gov/842545/.

[16] Will be considered vital as they will offer crucial medical products and services.

Recommendations

To foster and promote health, there is need to emphasize both internal and external factors that influence healthcare.[17] From intersectional policies that affect the healthcare sector to issue based approaches to analyze concerns in regard to effectual healthcare practice, it is a necessity to give the healthcare sectors and health systems immense attention.[18] This will ensure that there is a comprehensive analysis of the issue affecting healthcare and health systems hence an effective conclusion can be made concerning establishing access and healthcare amenities.

Healthcare systems and polices have to be amended to incorporate relevant and appropriate practices which will foster health services with reference to the quality of medical products, medical institutions such as pharmacies, and the issue of charges on the services offered. In addition to the establishment of an effectual healthcare system, there is need to ensure that it encompasses the population in a comprehensive way (Tichenor & Sridhar, 2017). This directive should encompass all inclusive of income, region, and accessibility to set-up a healthcare system which upholds equity. More pronounced and probable medical issues should be assigned more resources[19] to reduce their impact while a substantial backup strategy and resources are improvised in the case of an emergency. Such a practice is currently underway in Germany whereby the Bismarck system policies are being reverted[20] to more relevant and effectual in terms of quality and cost of healthcare services to people.

References

1. ALI H S, ALDAHAB A S, ELHAG B M, PRAJAPATI S K, BADULLA W F, ALSHAKKA M, BAIG M R (2019) Patients' Perspectives on Services Provided by Community Pharmacies in Terms of Patients' Perception and Satisfaction. *Journal of Young Pharmacists*, *11*(3), 279.
2. AL-ZUHERI A, VLACHOS I, AMER Y (2021) APPLICATION OF LEAN SIX SIGMA TO REDUCE PATIENT WAITING TIME: LITERATURE REVIEW. *International Journal for Quality Research*, *15*(1).
3. BUSSE R, BLÜMEL M, KNIEPS F, BÄRNIGHAUSEN T (2017) Statutory health insurance in Germany: a health system shaped by 135 years of solidarity, self-governance, and competition. *The Lancet*, *390* (10097), 882-897.
4. COETZEE L (2017) Investing in 2017–the case for offshore still remains compelling. *MoneyMarketing*, *2017*(1), 14-14.
5. DOUGLAS M, KATIKIREDDI S V, TAULBUT M, MCKEE M, MCCARTNEY G (2020) Mitigating the wider health effects of covid-19 pandemic response. *Bmj*, *369*.
6. GERLINGER T, SCHMUCKER R (2009) A long farewell to the Bismarck system: Incremental change in the German health insurance system. *German Policy Studies/Politikfeldanalyse*, *5*(1).
7. GRAESSNER H, SCHÄFER F, SCARPA M, WAGNER T O (2017) European reference networks: consequences for healthcare in Germany. *Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz*, *60*(5), 537-541.
8. ILARDO M L, SPECIALE A (2020) The community pharmacist: perceived barriers and patient-centered care communication. *International Journal of Environmental Research and Public Health*, *17*(2), 536.
9. KUHLMANN S (2020) Between Unity and Variety: Germany's Responses to the

[17] Vaughn, V. M., Saint, S., Krein, S. L., Forman, J. H., Meddings, J., Ameling, J., ... Chopra, V. (2019). Characteristics of healthcare organizations struggling to improve quality: results from a systematic review of qualitative studies. *BMJ quality & safety*, *28*(1), 74-84.

[19] Kumar, S., Preetha, G. (2012, January). Health promotion: an effective tool for global health. *Indian Journal of Community Medicine*: official publication of Indian Association of Preventive & Social Medicine. www.ncbi.nlm.nih.gov

[19] To reduce their effect.

[20] Light, D. (1985). Values and Structure in the German Health Care Systems. *The Milbank Memorial Fund Quarterly. Health and Society, 63*(4), 615-647. doi:10.2307/3349852

COVID-19 Pandemic. *Good Public Governance in a Global Pandemic*, 291.
10. KUHN B, KLEIJ K S, LIERSCH S, STEINHÄUSER J, AMELUNG V (2017) Which strategies might improve local primary healthcare in Germany? An explorative study from a local government point of view. *BMC family practice*, *18*(1), 1-12.
11. LANGER B, KIEPER M, LAUBE S, SCHRAMM J, WEBER S, WERWATH A (2018) Assessment of counselling for acute diarrhea in North-Eastern German pharmacies—A follow-up study using the simulated patient methodology. *Pharmacology & Pharmacy*, *9*(7), 257-269.
12. MARTÍNEZ-LÓPEZ-DE-CASTRO N, ÁLVAREZ-PAYERO M, MARTÍN-VILA A, SAMARTÍN-UCHA M, IGLESIAS-NEIRO P, GAYOSO-REY M, ... PIÑEIRO-CORRALES G. (2018). Factors associated with patient satisfaction in an outpatient hospital pharmacy. *European Journal of Hospital Pharmacy*, *25*(4), 183-188.
13. MATTERS L (2019). Legal and regulatory developments affecting pharmacy in 2018.
14. MUBARAK N, RAJA S A, KHAN T M, ZIN C S (2021) Review Narrative. *Narrative*, *71*(3).
15. MÜLLERSCHÖN J, KOSCHOLLEK C, SANTOS-HÖVENER C, KUEHNE A, MÜLLER-NORDHORN J, BREMER V (2019) Impact of health insurance status among migrants from sub-Saharan Africa on access to health care and HIV testing in Germany: a participatory cross-sectional survey. *BMC international health and human rights*, *19*(1), 1-13.
16. NUNES-VAZ R (2020) Visualizing the doubling time of COVID-19 allows comparison of the success of containment measures. *Global Biosecurity*, *1*(3).
17. PARIYAL D, PRIYANKA S, JAIN D, GUDHE D (2020) Assessment of Patient's Satisfaction With A Comparative Study On In-House Pharmacy And Retail Pharmacy Using Questionnaire. *European Journal of Molecular & Clinical Medicine*, *7*(11), 3729-3735.
18. PELSER A (2018) *An analysis of trust amongst customers of independent community pharmacies* (Doctoral dissertation, Stellenbosch: Stellenbosch University).
19. QATO D M, ZENK S, WILDER J, HARRINGTON R, GASKIN D, ALEXANDER G C (2017) The availability of pharmacies in the United States: 2007–2015. *PloS one*, *12*(8), e0183172.
20. TICHENOR M, SRIDHAR D (2017) Universal health coverage, health systems strengthening, and the World Bank. *BMJ*, *358*.

Traditional Chinese Medicine in Distance Physiotherapy of non-specific Back Pain during the COVID-19 Pandemic

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Abstract:

This paper deals with the use of meridian exercises of Traditional Chinese medicine in physiotherapy. On a selected sample of 30 probands aged between 19 to 55 years who met the set criteria, the effect of exercises for non-specific pain in the cervical, thoracic and lumbar spine was examined. The pilot prospective study compares the intensity of pain in 3 areas of the back before the start of a 4-week cycle exercise at least 3 times a week and after the end of the exercise cycle. After a series of meridian exercises there was a statistically significant pain reduction in the cervical spine ($p < 0.05$), in the thoracic

spine ($p < 0.05$) and on the level ($p < 0.05$) in the lumbar spine. The pain frequency during the week decreased by an average ($p< 0.05$) of a day. The pilot study unequivocally confirmed the positive effect of meridian exercises on reducing the intensity of pain in 3 back areas as well as on reducing the frequency of perceived pain. The addressed issue has a perspective both on the level of physiotherapeutic procedures and their diagnostic use and from the point of view of Traditional Chinese Medicine with the impact of meridian exercises on individual elements, such as organ systems.

Introduction

Back pain is one of the most common diseases that has plagued humanity through history. The frequency of spinal diseases occurrence ranks second to seasonal viral diseases of the upper respiratory tract. According to statistics 70-85% of people at some life stage suffer from back pain. Their prevalence is 15-45% per year and the lifetime incidence reaches up to 84% [1, 6]. Pain can appear in all parts of the spine, most commonly in the neck and lumbar region. The occurrence ratio in individual spinal sections is 4: 2: 1 for lumbosacral, cervical and thoracic region [14]. Back pain mainly affects people in their productive period, where the maximum incidence peaks at 35-55 years of age [11, 14]. With increasing average age

of the population, the incidence of back pain rises. Taking into account the driving forces, conditions of its occurrence and the trends of incidence, which keep on shifting to lower age groups, back pain falls within the so-called civilization diseases. It often affects young women of fertile age and what is needed here is to act causally in prenatal period during psychophysical run-up to childbirth [12]. Most back pain conditions have a benign course. About 90% their causes are not known; therefore they are described as non-specific [9]. It

is definitely a physical activity that serves to avoid non-specific back pain. Physiotherapy enjoys large numbers of special methodologies and procedures that can prevent back pain with regular exercise. The aim of this paper is to point out the possibility of using Traditional Chinese Medicine exercises for non-specific back pain.

Traditional Chinese Medicine

Western culture doesn't provide any more than official school medicine (Western, modern), whereas in China there are two official schools of medicine, namely modern, Western Medicine and Traditional Chinese Medicine. The latter is characterized by its clear and utter indirectness. Diseases are not diagnosed histologically, laboratory-technically, radiologically, etc. Monitored are above all symptoms that are being analyzed [10]. Terms such as meridians or tendon-muscle pathways are not recognized in common medicine in our region, yet in Traditional Chinese Medicine it is a matter of everyday use like our terms muscle and bone. According to Traditional Chinese Medicine, Chi is the primary substance of the universe. It is understood to be a being-in-itself, in all its forms. It is neither an entity itself that could be somehow delimited or isolated, nor it is a product of an organism. Chi is the vital root of the organism. It is the force due to which an organism: comes to life; maintains its course and initiates all its functions [2].

Chi functions in the body are:

1. The function of the driving force – the basic energy that feeds all life corporal processes (activity of organs, metabolism of substances, formation of new blood)
2. Thermal insulation function – a source of heat for the human body
3. Protective function – prevents the body from entering external harmful factors
4. Retaining function – keeps the flow of body fluids in strict pathways
5. Transformation function – metabolism
6. Nutritional function – supplies nutrients to all parts of the body

There are 3 qualities of Chi in Traditional Chinese Medicine: germinal, hereditary, and energy coming with breathing. Movement is the essence of these 3 qualities. Their cycle in the body involves four basic movements: ascent,

descent, intake and release. The movement of Chi triggers and keeps the individual organs working and coordinates their interaction. Disrupted activity in at least one of the organs causes disruption of the whole organism. When the flow of Chi in the body is not uniform, it incites first mental and then functional and organic changes up to dying-away and death – time when the flow of Chi is fully interrupted. Chi flow affects person's emotions and will, mental and physical activity as well. If the flow of Chi is in balance, one is healthy, efficient, feels well, self-poised and cheerful. Chi can be perceived as a force that forms the basis of all activities of man and nature. Chi flows through man in pathways called meridians or acupuncture pathways [8]. It describes 12 proper pathways, the names of which are derived from the terms of the internal organs to which the individual meridians are related. These are the pathways of lungs, colon, kidneys, bladder, liver, gallbladder, heart, small intestine, spleen, stomach, pericardium, and triple warmer.

Aim

The aim of this work is to point out on the use of set of meridian exercises in physiotherapy, to ascertain the effect of meridian exercises on the reduction of non-specific pain in the cervical, thoracic and lumbar spine areas.

Participants

The whole group of probands participating in the study consisted of 30 addressed and selected individuals. From this sample, 5 were men (17%) and 25 women (83%), with an age average of 34 years, ranging from 19 to 55 years. Based on the information obtained the inclusion and exclusion criteria of the probands were determined. Since meridian exercises belong to a group of relaxation exercises, the first basic criterion for the selection of probands was the presence of physiological range of spine's mobility as well as that of large joints [5], while the mobility range should not exceed the limit of hypermobility by ensuring that no probands were diagnosed with hypermobility in the past.

The second basic selection criterion was the age limit from 19 to 55 years. The third basic selection criterion was that all participants were healthy people who had not been diagnosed with a serious illness and had aptitude for cooperation. The established exclusion criteria were based on contraindications to exercise, namely: pregnancy; women at puerperium; medical conditions after surgery or acute injuries; severe decompensated chronic diseases; conditions after operations of lumbar, knee or shoulder joints or spine; ongoing infectious diseases; feverish conditions. An informed consent to the personal data protection was obtained via the electronic form by which probands' filling in, confirmed they were duly familiarized with the nature of the study, its content and personal data protection and agreed with the included information. The online sheet was filled in anonymously with a four-character identification code established by each study participant.

Methods

For the purposes of elaborating a pilot prospective study, the method of a self-designed questionnaire was used, focusing on a quantitative analysis. The questionnaire contained 5 closed and 7 open questions with 100% return rate. The prospective study took place through November 2020 to February 2021. Due to changes in epidemiological situation in Slovakia associated with COVID-19, the course of the practical part of the study was carried out at a distance. Study data were obtained using an online form filled in by the proband himself. Before filling in all probands were thoroughly informed on: the goals; course; nature of the study; exercise contraindications; and the urgency to exercise 3 times a week.

Instructions for practicing meridian exercises were sent to them online in the form of a text document with appropriate pictures of performing individual exercises. Using the online form, the sex, age, health status and level of physical activity in the everyday life of the probands were ascertained. In its basic form it also focused on objective indicators of the range of mobility and symmetry of movements in each of the probands. The most important part of the form were questions focused on the individual perception of intensity and frequency of pain in the 3 parts of the back using a 10 point numerical pain scale [7] and on the frequency of perceived pain during the week. Probands were instructed as to the importance of performing exercises with no pain – in case of exercise difficulties in terms of cracking, peeling, joint pain, it was recommended to

change the position or exclude the exercise from the set, or contact a physiotherapist. During the study only one feedback was noted due to problems with one of the exercises; the problem was eliminated through a video call following due instruction. After initial instruction, filling out an online form, and self-study meridian exercises, subjects completed a 4 week exercise cycle with 3 exercises per week. Four weeks after the exercise cycle they filled out the online form again. All data were recorded in MS Excel table and then statistically processed using descriptive and analytical statistics. Within the analytical statistics framework we used a standardized two-way Student's paired t-test, where 0.05 value was determined for the level of alpha significance. The processed data are presented using pie and bar charts and tables.

Results

The research group consisted of 30 addressed and selected probands with an average age of 30 years ranging from 19 to 55 years. For the purposes of statistical processing, they were divided into several age categories by 7 years (Chart 1).

From the examined sample 6 subjects reported a manual type of employment, that is 20% of probands; whereas 63% of probands, 19 persons

Chart 1 Number of probands sampled into individual age categories

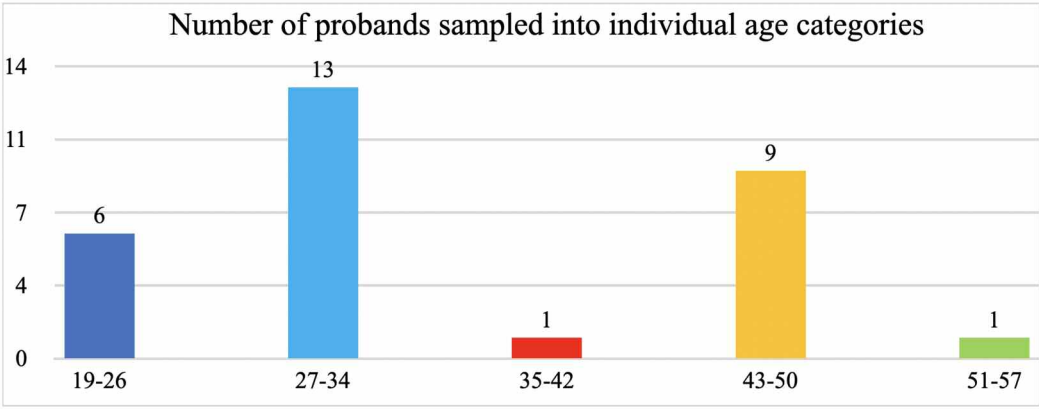
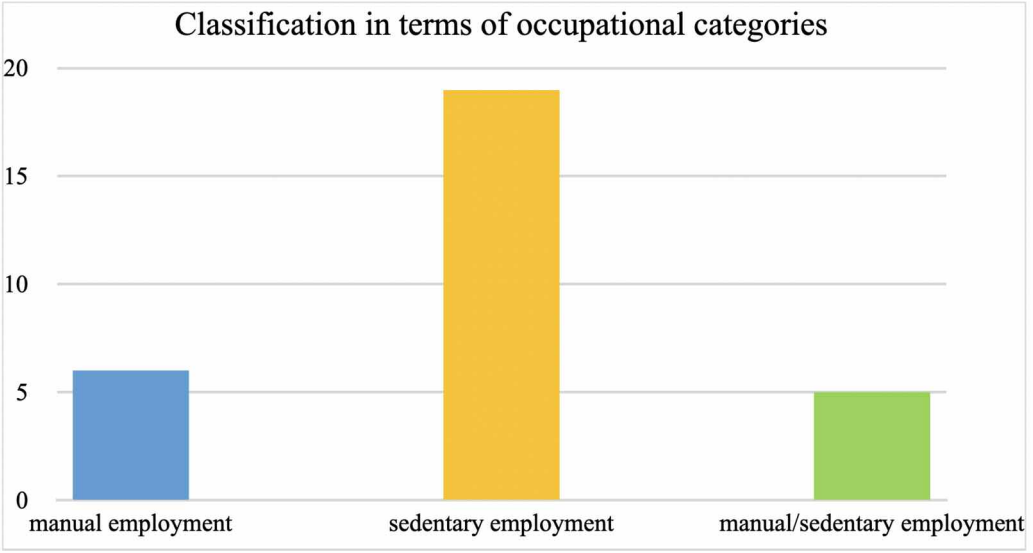


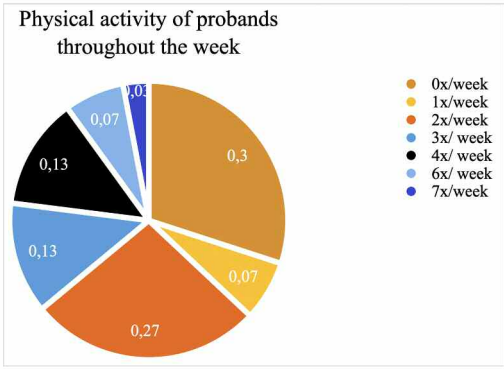
Chart 2 Subject classification in terms of occupational categories



reported a sedentary type of employment. Finally, 5 probands (17%) who participated in the study stated that their employment is both sedentary and manual (Chart 2).

The level of physical activity within a particular sport or individual exercise excluding walking, shows that up to 30% of probands do not in their daily lives practice any type of sport and only 36% of probands exercise 3 or more times a week (Chart 3).

Chart 3 Physical activity of probands throughout the week



Intensity of pain perceived in the cervical spine

Regarding improvement or worsening the intensity of perceived pain it was found that 43% of probands perceive a reduction in the intensity of pain in the cervical spine after a 4 week exercise cycle. In 40% of probands the intensity of perceived pain did not change and 17% of probands reported exacerbation of pain (Chart 4).

Depending on the change in cervical spine pain before and after exercise, the following data

Chart 4 Given percentage of the difference in pain intensity in the cervical spine area

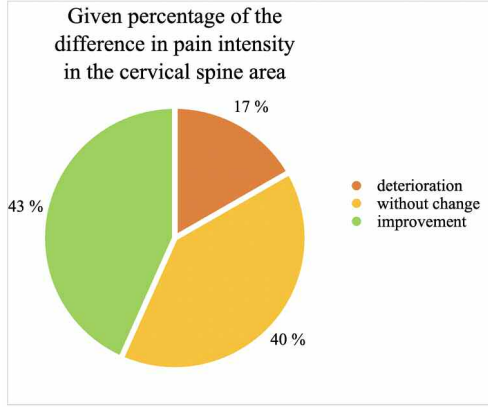
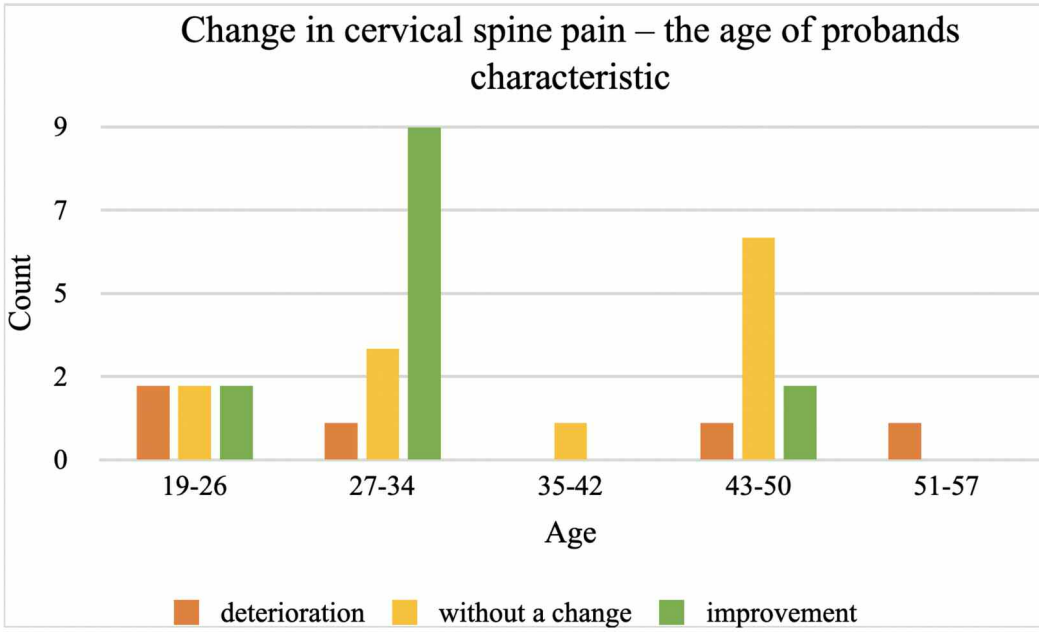


Chart 5 Change in cervical spine pain – the age of probands characteristic



were acquired. In the 19–26-years age group - 6 people; 27–34-years 13 people; 35–42-years only 1 proband; 43–50-years 9 people and in the 51-years-and-older only one person. The intensity of pain in the 19–26-year age group improved, worsened and stayed unchanged in the same number of probands. In the 27–34-years age group we see considerable improvement in 9 probands, situation of 3 probands stayed unchanged and intensity of pain worsened in just one person. The proband belonging to the 35–42-years age group reports status unchanged. The unchanged state of the intensity of cervical spine pain appeared mostly in 43–50-year age group in 6 probands, where only 2 people report improvement and 1 person deterioration. The proband from the 51-years-and-older age group reports improvement in pain intensity (Chart 5).

The intensity of pain in cervical spine area before the beginning of the exercise was on the numerical scale from 1 to 10 at an average level of 2.97. After 4 weeks of exercise this value decreased with the resulting average 2.3. After series of meridian exercises there was a statistically significant reduction of pain in cervical spine area M 0.67; p 0.04 (Table 1).

Table 1 Cervical spine pain intensity

Intensity of pain in cervical spine area – statistical indicators			
	C spine/ initial pain	C spine/ final pain	C spine/ difference
Mean	2,97	2,30	0,67
Median	2,00	2,00	0,00
Modus	2,00	1,00	0,00
Std. Deviation	1,79	1,29	1,73
Max	6	6	4
Min	1	1	-3
Variance	5	5	7
Sum	89	69	20
N	30	30	30
p			0,043

Intensity of pain perceived in the thoracic spine area

Regarding improvement, deterioration or unaltered status before and after exercise, there was an improvement in 47% of participants. 30% of probands report unaltered state of pain intensity in the thoracic spine area before and after

Chart 6 Given percentage of the difference in pain intensity in the thoracic spine area

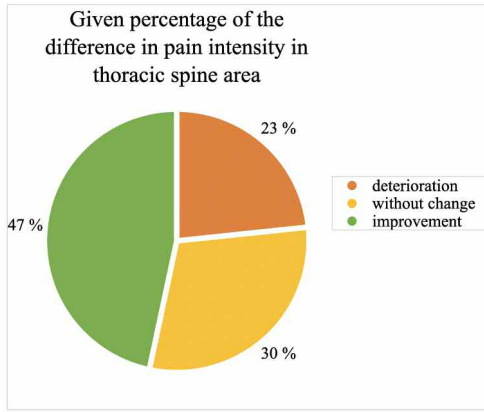
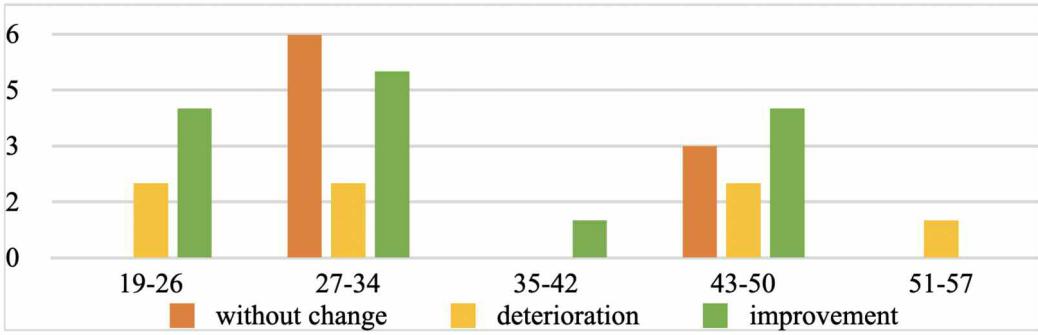


Chart 7 Change in thoracic spine pain – age characteristic



exercise and in 23% of probands the pain intensity has increased.

Dependence of change in the chest pain on age (Chart 6) is observed in the 19–26-year age group, where two thirds of the probands report improvement and one third deterioration. Unaltered state within this age group is not noted. In the contrary, in the 27–34-year age group 6 probands reported unaltered state of pain intensity, 5 probands had a state of reduced perceived pain and in 2 people the pain became more pronounced. The proband of 35–42-year age group reports pain improvement. The 43–50-year age group has the most cases of improvement, just one case less in unaltered state and two cases of pain intensity worsening in the thoracic spine area. The proband pertaining to 51-years-and-older age group reports worsening of perceived pain (Chart 7).

The average intensity of chest pain before exercise was 3.9. After 4 weeks of exercising the intensity of pain in this area decreased in average to 2.87 points on the numerical pain scale. After a series of meridian exercises there was a statis-

Table 2 Intensity of pain in the thoracic spine area

Intensity of pain in thoracic spine area – statistical indicators			
	Th spine/ initial pain	Th spine/ final pain	Th spine/ difference
Mean	3,90	2,87	1,03
Median	4,00	3,00	0,00
Modus	1,00	3,00	0,00
Std. Deviation	2,37	1,59	2,20
max	8	7	7
min	1	1	-2
Variance	7	6	9
N	30	30	30
p			0,016

Chart 8 Given percentage of the difference in pain intensity in the lumbar spine area

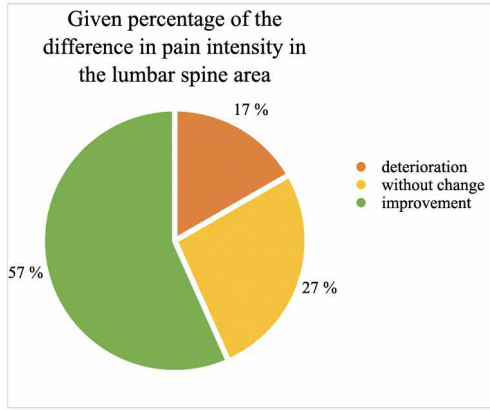
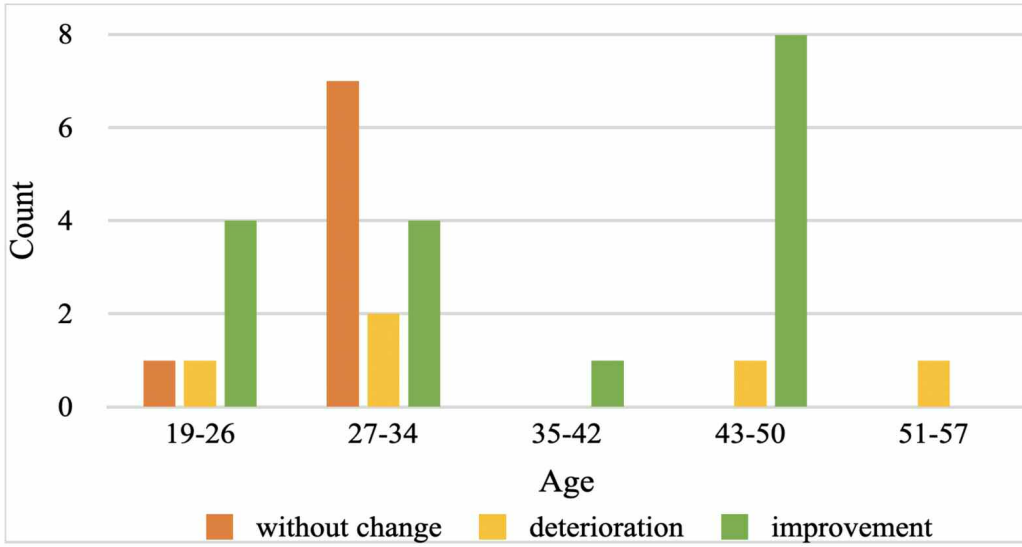


Chart 9 Change in lumbar spine pain – age of probands characteristic



tically significant reduction of pain in the thoracic spine area M 1, 03; p 0.02 (Table 2).

Intensity of perceived pain in the lumbar spine area

The percentage of probands in which the intensity of perceived lumbar spine pain has decreased was 56%. 27% of probands underwent no change in pain and 17% of probands reported worsening of perceived pain after 4 weeks of exercise (Chart 8).

The dependence of change in the pain intensity on age is shown in Chart 9. In the 19–26-year age group out of the total number of 6 people only 1 reported pain worsening and 1 whose pain intensity hasn't changed. The other 4 probands report a reduction in perceived pain. In the 27–34-year age group, the intensity of pain did not change in 7 probands, in 4 cases the pain decreased and 2 reported worsening of perceived pain. The proband in the 35–42-year age group observed improvement. In the 43–50-year age group, there was a reduction in perceived pain in the lumbar spine area in 8 of the total number of 9 people and worsening in one case. The proband belonging to the last age group reported worsening of perceived pain.

In the lumbar spine area we come across an average pain intensity of 3.43 before the start of exercise. As soon as the 3-times-a-week 4-week-exercise was completed, there was a statistically significant reduction in pain intensity on level M 1.03; p 0.001 (Table 3)

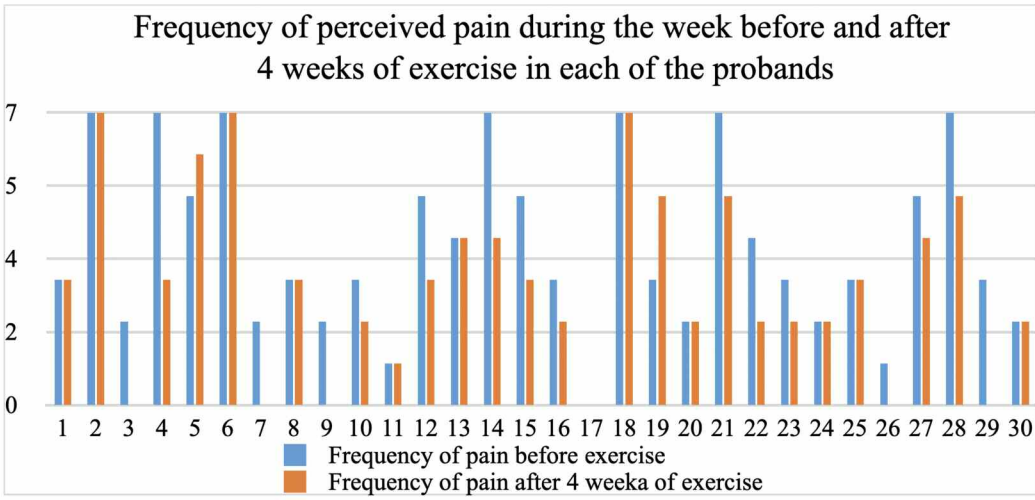
Table 3 Intensity of pain in the lumbar spine area

Intensity of pain in lumbar spine area – statistical indicators			
	L spine/ initial pain	L spine/ final pain	L spine/ difference
Mean	3,43	2,40	1,03
Median	2,50	2,00	1,00
Modus	1,00	2,00	0,00
Std. Deviation	2,49	1,38	1,79
max	10	6	6
min	1	1	-2
Variance	9	5	8
N	30	30	30
p			0,002

Frequency of perceived pain throughout the week

Chart 10 shows the frequency of pain before and after the cycle of meridian exercises in each of the probands. It indicates that in 5 probands the pain frequency decreased to "less than once

Chart 10 Frequency of perceived pain during the week before and after 4 weeks of exercise in each of the probands



a week" and only 2 probands reported an increase in pain frequency.

Chart 11 indicates changes in pain frequency before and after exercise. It demonstrates 55% of probands showing a decrease in pain frequency, in 40% change of their frequency, and 7% of probands reported an overall increase in pain frequency during the week.

Depending on the change in frequency with age, there was worsening of frequency only in the 43–50-year age group and in the 51-year-and-more age group. In the 27–34-year age group more than half of the probands report improvement and thus a decrease in the frequency of perceived pain, whereas in the 19–26-year age group the ratio of probands without change and those with improvement remained the same (Chart 12).

Average number of days with perceived pain before exercise was 3.83. After 4 weeks the fre-

Chart 11 Given percentage of the difference in pain frequency before and after 4 weeks of exercise

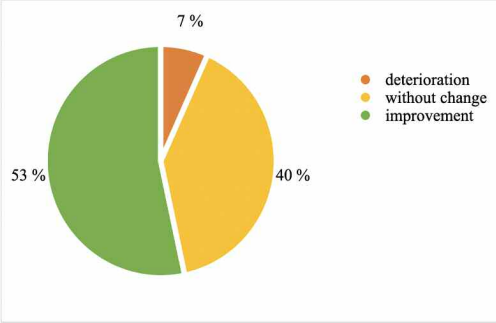
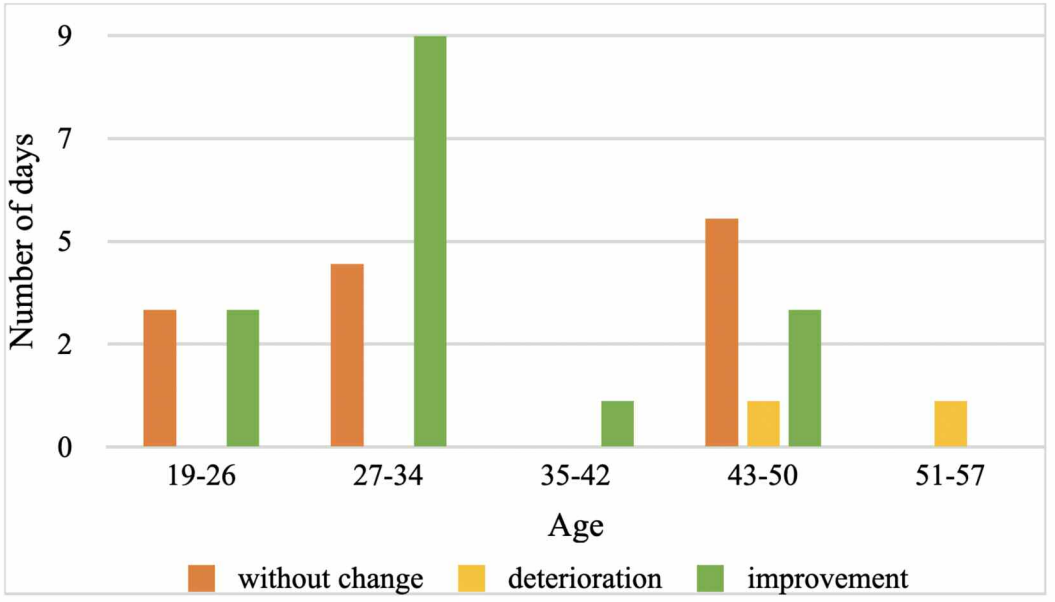


Table 4 Frequency of perceived pain throughout the week

Frequency of perceived pain throughout the week – statistical indicators			
	Frequency of pain on start	Frequency of pain after 4 weeks	Frequency of pain difference
Mean	3,83	2,90	0,93
Median	3,00	3,00	1,00
Modus	3,00	2,00	0,00
Std. Deviation	2,13	2,17	1,31
max	7	7	4
min	0	0	-2
Variance	7	7	6
N	30	30	30
p			0,001

Chart 12 Change in pain frequency – age of probands characteristic



quency of pain during a week decreased by 0.93 with the resulting average of 2.9 days. After series of meridian exercises there was a statistically significant reduction in pain M 0.93; p 0.000 (Table 4).

Chart 13 shows change in the intensity of cervical, thoracic and lumbar spine pain in each of the individual probands. Twenty-eight out of 30 subjects reported reduction in the intensity of perceived pain after four weeks in at least one of the three areas of the back by at least one degree of the numerical pain intensity scale.

Chart 13 Change in the intensity of cervical, thoracic and lumbar spine pain after 4 weeks in the pain intensities of the cervical, thoracic and lumbar spine areas were calculated and the average change in pain intensity of each of the probands was declared, which can be observed on the chart 14. Overall proband improvement average is 0.91, in 24 probands the overall pain intensity decreased, in 2 probands average pain intensity in cervical, thoracic and lumbar spine pain remained unaltered. Four people reported pain worsening.

The sums of the average intensity in the cervical, thoracic and lumbar spine pain were compared to the probands' age. The collected data can be observed in the resulting Chart 15. Since only 1 proband is included in the 35–42-year and 51–57-year age groups, these results are of no relevance compared to other groups because they may be a subject of accidental selection. The rest of age categories shows difference in average improvement, however their differences do not exceed 1 point of perceived pain intensity. Based on that data no claim can be drawn about a po-

Chart 13 Change in the intensity of cervical, thoracic and lumbar spine pain in each of the individual probands.

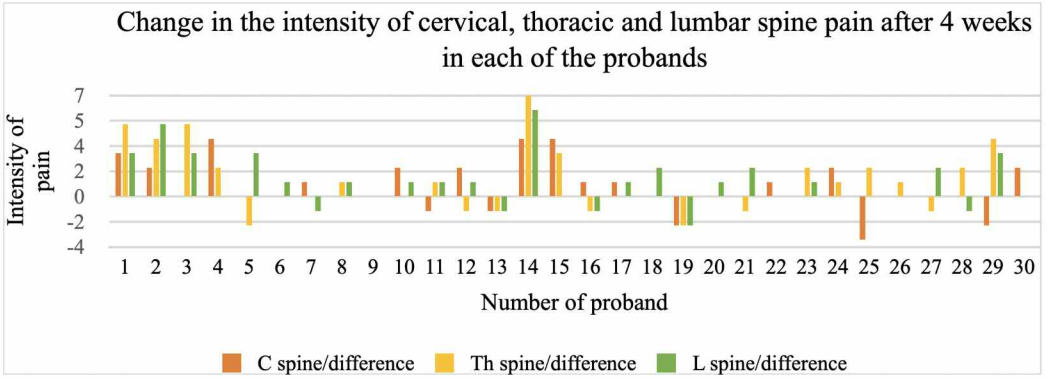
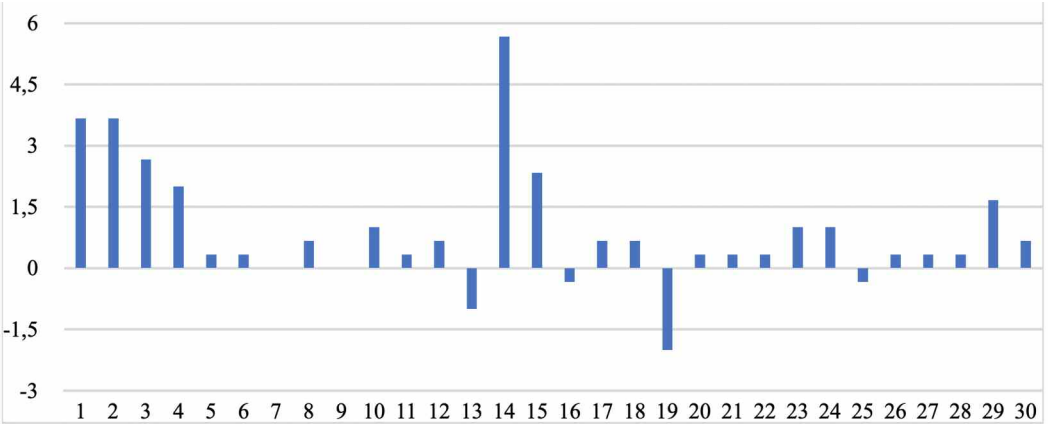


Chart 14 Average change in the sum of the intensity of cervical, thoracic and lumbar spine pain in each of the probands



ssible greater suitability of meridian exercises for a certain age group. In terms of data obtained, the most remarkable improvement was observed in the 43–50-year age group.

The dependence of the total change in the intensity of neck, chest and lumbar pain after 4 weeks on occupational categories is visualized in the Chart 16. Chart 16 shows that probands with manual type of work show a 0.94 point more notable improvement in pain intensity after 4 weeks of exercise than probands with sedentary type of employment. If the provided observation should be generalized, it would result from the chart that the more movement we have in everyday life, the more beneficial a certain type of rehabilitation exercise will be. However, due to small group of test-takers and a lack of verification tools this statement cannot be considered generally binding.

Conclusion

A prospective pilot study examined the effect of meridian exercises on non-specific back pain. This type of exercise draws its essence from the theory of Traditional Chinese Medicine, whose implementation in rehabilitation is expanding, be it owing to patient's or

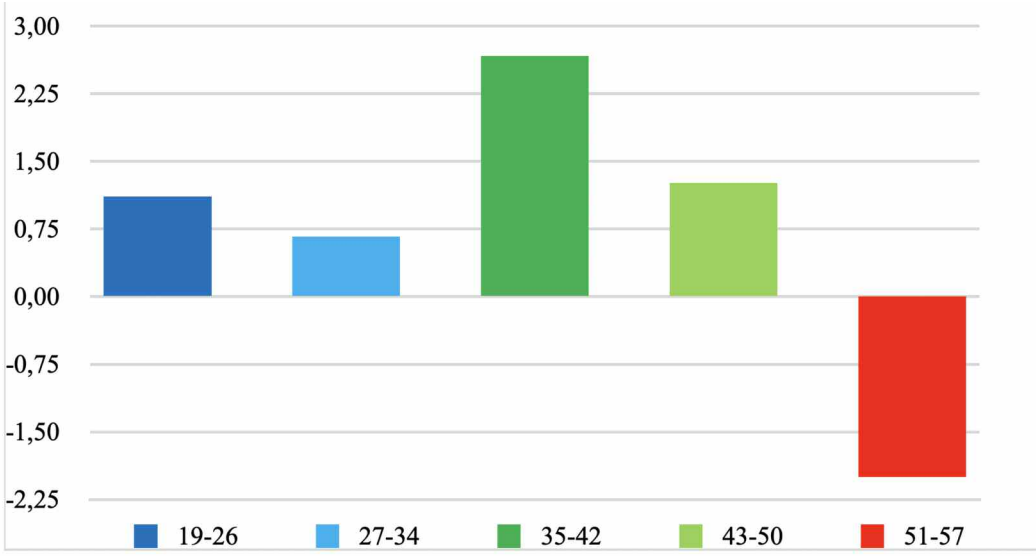
the therapist's interest. For this reason, the effect of meridian exercises was through a pilot study objectified on non-specific back pain in healthy individuals. The study confirmed physiotherapy's utilization of meridian exercises as part of therapy and prevention, naturally with respect to contraindications and groups for which this type of exercise is not suitable.

One of the benefits of this methodology is also the fact that although 1 exercise of the whole set lasts in average 10-15 minutes, it certainly affects the intensity and frequency of perceived pain. The study clearly confirmed the positive effect of meridian exercises on reducing the intensity of pain in individual areas of the back as well as on reducing the frequency of perceived pain. The potential usage of this exercise system is wide, whether in terms of physiotherapeutic procedures and their use for various diagnoses or in terms of Traditional Chinese Medicine and the influence of meridian exercises on individual elements, such as organ systems of specific meridians and parts of the human body with which these meridians cohere.

References

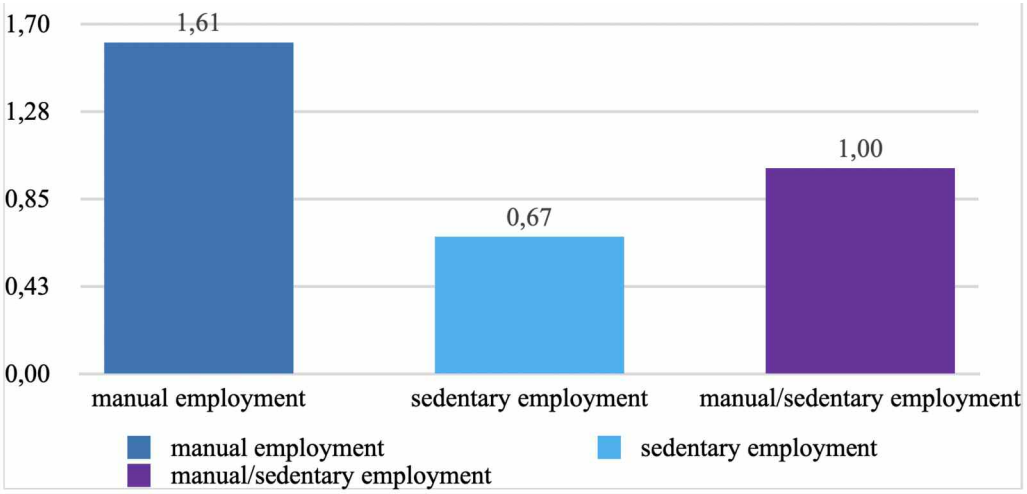
1. ANDERSEN G B J (1999) *Epidemiological features of chronic low back pain*. In Lancet, ISSN 0140-6736, 1999; vol. 354, s. 581-585.
2. ANDO V (2014) *Classical Chinese medicine*.

Chart 15 Average change in the pain intensity of the sum of cervical, thoracic & lumbar spine areas depending on occupational categories



6th ed. Brno: Svítaní. 279s. ISBN 978-80-86601-28-1.
3. HOMZOVA K (2020) *Exercises to awaken the meridians*. [online]. [cited 2020-12-17]. Available from:https://diochi.sk/cvicenie-na-prebudenie-meridianov/.
4. CHENGNAN S (2007) Chinese therapeutic massage. Brno. 501s. ISBN 978-80-86198-45-3.
5. JANIKOVA D (1998) *Physiotherapy: functional diagnosis of the locomotor system*. 1st ed. Martin: Osveta, 239 p. ISBN 80-8063-015-1.
6. KOES B W *et al*. (2006) Diagnosis and treatment of low back pain In *BMJ*, ISSN 1756-1833, 2006, vol. 332, no. 7555, pp. 430-434.
7. KOLAR P *et al*. 2012. Rehabilitation in clinical practice. Prague: Galen. 713p. ISBN 978-80-7262-657-1.
8. KOMBERCOVA J, SVOBODOVA M (2000) Olomouc. 253s. ISBN 80-901989-9-6.
9. MANEK N J, MACGREGOR A J (2005) Epidemiology of back disorders: prevalence, risk factors and prognosis. in *Curr Opin Rheumatol*, ISSN 1531-6963, 2005, vol. 17, no. 2, pp. 134-140.
10. MENG A (2015) Traditional Chinese therapeutic massage. 6th ed. Olomouc: Fontaine. 352p. ISBN 978-80-7336-781-7.
11. NACHEMSON A L, JONSSON E (2000) *Neck and Back Pain*. Philadephia: Lippincott Williams and Wilkins, 2000. 495 p. ISBN 978-0-7817276-0-0.
12. REPKOVA A (2008) Psychophysical preparation for childbirth Bratislava: SZU, 2008. - 105 p. - ISBN 978-80-89352-21-0.
13. SKALA B (2017) Treatment of back pain. 53 p. [cited 2017-04-15]. Available from: http://slideplayer.cz/slide/7347838/.
14. VAN TULDER M *et al*. (2006) European guidelines for the management of acute nonspecific low back pain in primary care. In Eur Spine J, ISSN 1432-0932, 2006, vol. 15, Suppl. 2, pp.

Chart 16 Average change in the pain intensity of sum of cervical, thoracic and lumbar spine areas depending on occupational categories



Preventing the Burnout Syndrome by Creating a Healthy & Healing Environment

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Background

Occupational burnout is a significant global problem that has impacted clinical outcomes, patient safety, and patient-centered care across healthcare settings (World Health Organization) [WHO], 2019. The classic definition of burnout, as defined by Dr. Christina Maslach, is "a psychologic syndrome involving emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment (Maslach & Jackson, 1982). Burnout affects cognitive, behavioral and emotional aspects of human behavior. It also interferes with how individuals process and interact with others at an individual and organizational level. Others have noted that burn-out individuals tend to focus on negative things rather than positive emotions (Bianchi & Laurent, 2015).

Nurse and physician burnout was recognized before the COVID-19 pandemic as a growing problem. Evidence now suggests that more than 50% of nurses, physician assistants and physicians report syndromes of burnout. The problem has become even more pronounced when the work environment contributes stressors associated with technological advancements, EMRs, increased patient acuity, and financial cost cutting measures.

It is now recognized that individuals and organizations burnout. As a public health issue, burnout and well-being are multifactorial and recognize that individuals and organizations contribute significant factors to the burnout syndrome. It appears that burnout rates are rising across specialties and settings resulting in increase of costs to individuals and organizations (National Academy of Medicine [NAM]), 2018. What is needed is a clear map to make decisions on clinical burnout. Healthcare workers (HCW) need confidential access to wellness activities, support systems and mental health consultation. A new model is needed to further refine the work-life balance and create a caring corporate culture. Healthcare leaders need to rethink how to support employees across disciplines when it comes to burnout and well-being.

Causes

In the initial phases of burnout, it is essential to address burnout on an individual level and this requires recognizing the symptoms. Contributors to burnout and well-being are multifactorial but 2 main drivers are evident in the literature: institutional factors and individual factors. Health system issues are major contributors to burnout. There appears to be agreement among the professions that fixing the burnout problem means addressing personal factors and system factors simultaneously. Burnout results from a combination of factors and from cumulative stressors working in combination. Failure to recognize both sources and stressors leaves important drivers of burnout unaddressed. High levels of burnout within a work setting will be accompanied by strong emotions: frustration, anger, doubt, apathy, distrust, cynicism, distrust of leaders (Fred & Scheid, 2018). Burnout also contributes to medical errors, high turnover rates, patient dissatisfaction, financial losses and poor quality of care (Hall, Johnson, Watt, Tsysa, O'Connor, 2016) which in turn accelerated institutional stress.

Most authors suggest that a disruptive healthcare environment has a profound impact on individual stress and behaviors associated with coping in a stressful work environment. Sources of stress include: pandemic related events; working long hours in stressful situations; workforce shortages; technological advances; market competition; leadership fatigue; and excessive acceleration in getting results. Others suggest: loss of independence; long-time documenting in the electronic health record (EHR); lack of flexibility; pressure for perfectionism; administrative burdens; government regulation has increased physician burnout. Healthcare workers are in high-risk occupations and need increased emotional support in difficult times (Rehler, K., Adair, K.C., Sexton, B, 2021). The negative effects of burnout at an individual level includes headaches, anger, anxiety, reduced personal accomplishments, job dissatisfaction, feelings of energy depletion, emotional exhaustion, reduced access to positive emotions, low productivity, poor sleeping, poorer immune functions, depression, and feelings of hopelessness.

Treatmen and Interventions

Increasing the level of resources in the organization is critical to addressing burnout and well-being. The most common method to measure the impact of stress is to use the Maslach Burnout Inventory first described in 1981 (Maslach & Johnson, 1981). Mitigating burnout among medical-clinical disciplines requires system-based solutions and building structures and strategies that support wellness. Kutch (Sept/Oct 2022) suggests that digital technologies can be used to create digital therapeutics that provide confidential support and treatment for mental health issues. Digital therapies give 24/7 access from multiple locations. Stronger employee-assistance programs (EAPs) are needed to support all employees in healthcare organizations across clinical disciplines and healthcare settings.

Shanafelt & Noseworthy (2017) discussed a program in the United Kingdom that promotes employee engagement to reduce burnout to include rewards and incentives, aligning values, and strengthening culture. In the United States, another study was launched by the National Academy of Medicine (2018) *ACTION Collaborative on Clinical Well-Being and Resilience to address HCW burnout*. A recent article in the American Journal of Public Health looked at work redesign strategies for the 21st century (Lovejoy, M., Kelly, E.L., Kubzansky, L.D. Berkman, L.F., 2021). These strategies included: increasing worker control; moderating job demands: providing training aimed at enhancing social relations at work. Corporate wellness programs have been used to improve the health of employees but have not adequately addressed burnout and well-being.

Updating the Job Strain Model can provide a powerful leverage against burnout and enhancing health and well-being. The model suggests that: workers need more control over tasks to be performed; increased autonomy; greater schedule flexibility; social support systems and increasing social relations in the workplace. Evidence-based interventions have historically focused on individual coping skills in contrast to organizational interventions combating burnout. Miotto, et al (2020) suggests that healthcare organizations need more mental health support groups from a variety of clinical and non-clinical disciplines. The authors reference a 3-tiered public mental health model (a pyramid) for disaster intervention. Others suggest that well-being is driven by individual level factors/interventions and organizational (environmental) level factors/interventions. Gibson, et al (2009) suggest that healthcare workers need increased emotional intelligence including: self-awareness; self-management; social awareness and relationship management to reduce burnout and increase well-being skills. Weidman, (2022) suggests that each healthcare organization is unique and managers will need to design strategies that work for their organization in a given geographic area. Some strategies include: telework; telehealth; redesigned benefit packages; educational opportunities for career growth. The EU has recognized the deepening healthcare staffing crises tied to aging and future burnout issues with an aging workforce. Figueroa, et al (2019) used a rapid evidence assessment (REA) methodology to analyze the evolving changes of health systems to epidemiological, demographic and societal shifts. The current challenges and priorities for health leadership and workforce management globally are not well understood. Cross cultural studies are needed to understand effective treatments for burnout.

A culture that embraces engagement and commitment will have less burnout in most situations. Organizations need to: re-examine current policies & procedures; utilize flextime; focus on life-long learning; building teams; trust. Traditional psychological barriers related to stigma and stereotyping must be reduced to provide workers with a willingness to seek and use mental health services. Healthcare systems need to identify and build factors that increase resilience and positive emotions: meaningful work; opportunities for personal growth; support systems for colleagues; leaders who support and promote autonomy; creating cultures that offer psychological safety. Organizational support of well-being is primarily focused on making systemic changes to the work environment including: demands and resources; work schedules; interactions with leaders; workload; workflow; work-life balance; and increasing the time allowed to see patients. Strengthening social connections outside of work and within the work environment is essential. Finally, physician leadership is needed to implement changes focusing on improved patient outcomes, increased provider satisfaction and decreased physician burnout (Sullivan, 2022).

Conclusion

Healthcare worker (HCW) burnout is a very complex issue with multifaceted causes. Assessing current strategies, both at the individual level and organizational level, is critical to addressing professional burnout in the clinical professions. Burnout is an international problem that adversely impacts the delivery of high-quality care. Future efforts necessitate shaping a new culture that supports a health and healing environment. A healthy culture recognizes burnout as a psychological and physical problem that can be prevented, diagnosed and successfully treated. Although hard to define at times, a healthy culture could include: positive values; embracing attitudes; providing support guidelines for employees; creating a climate where there is a shared learning environment; improved communications (Menaker, R. & Wampfer, E., July 2022). Organizational leaders need to empower, energize and inspire people who work for them. The major challenge is to design new strategies and structures that support well-being. The impact of the work environment on burnout and well-being can't be understated. The individual and the organization have a shared responsibility in addressing burnout. Because burnout is a multi-factorial problem, positive actions need to be taken at the institutional, state, national and global levels. Evidence-based practices that have been sufficiently tested need to be used. The National Academics of Sciences, Engineering, and Medicine [NASEM], 2019 released a report *Taking Action Against Clinical Burnout: A Systems Approach to Professional Well-Being* (NASEM, 2019). The report outlined several recommenda-

tions focused on well-being for healthcare systems. Healthcare organizations need to develop and implement burnout interventions that make a difference, are sustainable, and reduce stress across health care settings.

References

1. BIANCHI R, LAURENT E (2015) Emotional information processing in depression and burnout: An eye-tracking study. *European Archives in Psychiatry & Clinical Neuroscience*, 265(1): 27-34.
2. FIGUEROA C A, HANISON R, CHAUHAN A, MEYER L (2019) Priorities and challenges for health leadership and workforce management globally: A rapid review. BMC Health Services Research, 19(239), 1-11, https://doc.org/10.1186/s 12913-019-4080-7 .
3. FRED H L, SCHEID M S (2018) Physician burnout: Causes, consequences, and (?) cures. Texas Health Institute Journal, 45(4), 198-202. https://doi.org/10.14503/THIJ-18-6842.
4. GIBSON J L, IVANCEVICH J M, DONNELLY J H, KONOPASKE R (2009) *Organization: Behavior, Structure, Process*. McGraw-Hill Irwin, New York, NY.
5. HALL L H, JOHNSON J, WATT L, TSYSA A, O'CONNOR D B (2016) Healthcare staffing, well-being, burnout, and patient safety: A systematic review. Plus One, 11(7), e0159015. https: doi.org/10.1371/journal.pone.015905.
6. KUTCH J M (2022) Focus on employee mental wellness. Healthcare Executive, Sept/October 2022, 36-37.
7. LIBOVA L, BALKOVA H. GALBAVY D, BEDNARIKOVA M (2020) Nursing in surgery: Assessment & measurement tools. Martin: Osveta Publishing House. 2020. ISBN 978-80-8063-491-9.p. 139.
8. LOVEJOY M, KELLY E L, KUBZANSKY L D, BERKMAN L F (2021) Work redesign for the 21st century: Promising strategies for enhancing worker well-being. *American Journal of Public Health*, October, 111(10), 1787-1795.
9. MASLACH C, JACKSON S (1982) Burnout in health professions: A social psychological analysis. In: Sanders GS, Suls J, eds. Social Psychologoy of Health and Illness. Hillsdale, NJ: Erlbaum.
10. MASLACH C, JACKSON S E (1981) The measurement of experienced burnout. *Journal of Organizational Behavior*, 2(2): 99-113.
11. MENAKER R WAMPFER E (2022) Shaping a culture: Implications for leaders. *MGMA Connections*, July, 26-32.
12. MIOTTO K, SANFORD J, BRYMER M J, BURSCH B, PYNOOS R S (2020) Implementing an emotional support and mental health response plan for healthcare workers during COVID-19 pandemic. *Trauma Psychology*, 12(S1), 5165-5167.
13. NATIONAL ACADEMY OF MEDICINE (2018). Action collaborative on clinical well-being and resilience. Retrieved from https://nam.edu/initiatives/clinical-resilience-and-well-being/.
14. NATIONAL ACADEMICS OF SCIENCES, ENGINEERING, AND MEDICINE. (2019). Taking action against clinical burnout: A systems approach to professional well-being. Retrieved from https://doi.org/10.17226/25521.
15. REHLER K, ADAIR K C, SEXTON B (2021) The science of health care worker burnout: Assessing and improving health care worker well-being. *Archives of Pathology & Laboratory Medicine, 145, 1095-1109*.
16. SHANAFELT T, NOSEWORTHY J H (2017) Executive leadership and physician well-being: Nine organizational strategies to promote engagement and reduce burnout. *Mayo Clinic Proceedings,* 92(1), 129-146. https://doi.org/10.1016/j.mayocp.2016.10.004.
17. SULLIVAN E E (July/August 2022). Engaging physicians in leadership: Motivations, challenges, and identify-based considerations. *Journal of Healthcare Management*, 67(4), 254-265.
18. WEIDMAN A J (2022) Establishing a sustainable healthcare delivery workforce in the wake of COVID-19. *Journal of Healthcare Management*, 67(4), 234-243, doi: 10.1097/jhm-d-22- 00100.
19. WORLD HEALTH ORGANIZATION (2019). Burnout an "Occupational phenomenon": International classification of diseases. Retrieved from https://www.who.int/mental-health/evidence/burn-out/en/.

Zero COVID 19 Occurrence among 206 of 1023 Migrants of War from Syria at the Czech Border (Rapid Research Note)

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Original Article

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Abstract:

Recent war conflicts in Europe and Middle East generate new refugee wawes and possible dissemination of Covid I9 variants from countries with low vaccination activity due to armed

events.Therefore we have tested all migrants of war(206) coming via Hungarian Slovak Czech Border,within one week among 1023 refugees of war..who had symptoms of respiratory infection.None of tested symptomatic individuals was positive by rapid antigen test.Therefore the the risk ofCOVID I9 dissemination was not been confirmed.

Introduction

At least 4 new armed conflicts have been observed within last year in the region of Eastern Europe and Middle East-one in Karabakh Region between Armenia and Azerbajdjan, one between Russian Federation and Ukraine and recently resurgence of an older conflict in Syria.There was several cases of cholera in Mariupol in the second, none in the first and an outbreak of cholera in Syria, within the third conflict, due to disrupted infrastructure, water supply and health services.The risk of new wawe of Covid I9 due to Omicron and other Variants-of -concerns has beeen communicated among health authorities in EU due to the last conflict.(12)

The goal of this research note was to test all symptomatic refugees and migrants of war, stocked at the Czech-Slovak-Hungarian space in the l st weeek of November 2022 arriving from HU by train via Slovakia o Czech republic, approaching FRG,arrested by Czech authorities and possibly illegaly extradited back to Slovakia, within an acute overnight refugee camp at the SK/CZ Border at Kuty.

Methods

All symptomatic cases arriving into the refugee and migrant camp of Slovak Migration Office, Boundary Police in border train checkpoint Kuty was performed within seven consecutive days, were tested and evaluated.with the goal, separate positive cases to a special tento for quarantine, therapy and isolation.Rapid Ag PCR type assay Cosmos Hong Kong PRC ST was used for testing of oropharyngeal swabs,in cases of positivity confirmation swab from nasopharynx from different provider was planned,however as seen below not needed.

All symptomatic cases independently from potential positivity respiratory etiquette as recommended by WHO was offered to each individual.,because tents with the capacity of 16 (20 tents, 320 maximum capacity of checkpoint camp) may be an environment for case to case transmission.

Results

None of 206 symptomatic individuals among 1023(9.9 percent)migrant of war(1022 syrian and l Yemeni citizens), in the age of 8 to 52 years of age(median 23.5) was tested positively for Covid I9, therefore confirmation PCR testing was not necessary.The reason for negativity , what was for us somewhat surprising, specially after the experience from Ukrainian Border, is not fully clear.First(i) rapid antigen testing by this type of test is false negative as provided due to data from the Manufacturer 18-20 percent,and repeated testing for confirmation by PCR is indicated only in typically symptomatic cases wha was not our case except of 5 cases, who however quickly responded to antibiotic antibacterial therapy with amoxicillin, therefore unlikely viral origin. Therefore , due to lower sensitivity despite of high specificity,tests could not catch possibly 20 percent of cases.Second(ii)refugees due to anamnesis given,were camping in nature outside more than 60 days transiting from Turkey to Bulôgaria or Greece and or Serbia to Hungary,taking later trains from Hungaryto CzechRrepublic, and outside natural environment prevents transmission of viral infections .Third, migrants were travelling in small groups maximum 10 with no closer contact to infected population in CEE countries. Fourth reason(iv) for caution and weakness of the surprising results may be the age of migrants, where only 3 of more than a thousand, were older than 50 years, so primary health population was escaping before war, including children.Fift reason(v) of zero occurrence is that most of them used the amp just for one night continuing via the green borders to Germany or Scandinavia.,so the time for transmission was short, and the camp was never overcrowded. and sanitary condition were acceptable(clean water,food ter per diem,,daily health care, Sixt(vi) reason was that all but one symptomatic cases have received in

Turkey or Syria at least two doses of covid I9 vaccine.(3)

Apart of testing,the migrant and refugee health and social work team, to prevent potential transmission,did(i)radical treatment of symptomatic RTI(i) distribution of masks(ii) according to the WHO guidelines(cohorting and isolation of symptomatic cases into quarantine tents(iii) and active surveillance.

Conclusion

The occurrence of Covid I9 in the real life ,,one week,,at the acute migrant and refugee camp was within the first week of transit , minimal.Therefore migrants and refugees of war did not represent epidemic or public health danger for the police officials at the border or surrounding population.Thre reason for minimal occurrence of COVID I9 may include,primary young and healthypúopulation,outside natural camping,travelling in small groups by hiking notusing public transport,not mixing with other population and vaccinated status.of migrants of war, and acceptable sanitary conditions in the checkpoint camp.,including food,water,sanitation, toilettes and health care.

References

1. THE LANCET COMMISSION (2022) *Covid I9*.Lancet 399/400, oct I6, online, wwww.lancet com.22.
2. ECDC (2021) *Annual report EU/Copenhagen*, 2021, 11 oct 2022,155 pp
3. WHO (2022) *Guidelines for prevention and tx of Covid I9.recommendations* by the Exxpert Panel.

Socio-demographic Characteristics of Tick Bite and Erythema migrans not associated with the Diagnosis of Neuroboreliosis

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Abstract:

Introduction: Lyme neuroborreliosis (LNB) is a tick-borne infection caused by bacteria Borrelia burgdorferi sensu lato that accounts for 10-15% of all Lyme borreliosis cases in Europe. LNB can present with a variety of neurological manifestations. We aimed to describe the typical anamnestic, clinical and laboratory features of patients diagnosed with LNB and to describe the differences between paediatric and adult cases. Additionally, we assessed the factors associated with definite LNB.
Methods: We retrospectively evaluated data of patients with suspected LNB had undergone lumbar puncture and were admitted to the Infectious diseases department of University hospital Bratislava, Slovakia, between September 2019 and May

2022. Patients were divided into three categories according to the diagnostic criteria of European Federation of Neurological Societies: A) cases with definite LNB, B) cases with possible LNB, C) non-LNB controls.

Results: In total, 139 patients were included in the analysis. 32 individuals were classified as definite LNB, 23 as possible LNB and 84 as non-LNB controls. 55.5% were females and 35.3% were children aged<18 years. 56.3% of patients with definite LNB reported a history of tick bite, and 21.9% a history of erythema migrans (EM). Peripheral facial nerve palsy (PFNP) was the most common clinical symptom in patients with definite LNB (65.6%), followed by headache (50.0%), fever (21.9%) and radicular pain (18.8%). In a univariate and multivariable analyses neither history of tick bite nor history of EM were significantly associated with definite LNB. Factors independently associated with definite LNB in multivariable analyses were (i) age < 18 years (aOR 7.89, 95% CI 2.00-31.03, p < 0,003), (ii) female gender (OR 6.34; 95% CI 1.66-24.17, p < 0.007), and (iii) facial nerve palsy (OR 10.54; 95% CI 2.41-55.19, p < 0.002).

Conclusion: We found that peripheral facial nerve palsy is the strongest predictor of definite LNB, and that the children<18 years and females in our study were more likely to be diagnosed with LNB. Our study also suggests that anamnestic data on history of tick bite and EM contribute little to the diagnosis of LNB and that the examination of CSF is essential for the diagnosis of LNB.

Introduction

Lyme neuroborreliosis (LNB) is a tick-borne infection caused by bacteria Borrelia burgdorferi sensu lato that accounts for 10-15% of all Lyme borreliosis cases in Europe [1, 2]. In more than 90% of cases LNB presents as an acute disease with symptoms developing 2 to 10 weeks after a tick bite. As less than 40% of patients with LNB report a history of erythema migrans (EM), the primoinfection is often unnoticed [3].

LNB can present with a variety of neurological manifestations. In adults, early LNB most often manifests as a painful meningo-radiculitis, often accompanied by unilateral or bilateral paresis of the facial nerve (so-called Banwarth syndrome), [4]. In children, early LNB mostly presents as aseptic meningitis that is commonly associated with facial nerve palsy.

Aseptic meningitis occurs in most cases of early LNB. Symptoms are often milder than in meningitis caused by other pathogens [5]. The most common initial clinical symptom is headache (30-90%). Neck stiffness and meningism are observed in less than 20% of cases [6].

Cranial neuritis is common in early LNB. All cranial nerves can be affected, except of olfactory nerve. Facial nerve involvement accounts for 80% of cranial neuritis and is bilateral in about a third of cases [7-10].

Symptoms of radiculitis most often appear 4 to 6 weeks after the tick bite or appearance of EM [11]. Patients commonly describe intense, radicular pain that poorly respond to conventional analgesics and intensifies at night. Pain usually starts in the region of tick bite or EM and progress to other areas without being limited to defined dermatomes or peripheral nerves [12-14]. Three out of four patients with radicular pain develop a neurological deficit within 1 to 4 weeks, paresis is more common than sensitivity disorders [3].

Antibiotic (ATB) treatment is highly effective in early LNB. 14 to 21 days treatment regimens with penicillin, third generation cephalosporin or doxycycline is recommended [11, 15]

Symptoms of facial nerve palsy usually completely resolve within one to two months of ATB treatment [16]. Nevertheless, in 5-10% of cases a residual paresis of facial nerve is observed even several months after treatment [17, 18].

Late neuroborreliosis is a rare manifestation of LNB, accounting for approximately 5% of all LNB cases, with neurological symptoms occurring more than 6 months after the primoinfection [19]. It manifests most often as myelitis and encephalomyelitis, less often as meningoencephalitis or radiculomyelitis. The development of symptoms is progressive, and the problems are chronic in nature [3]. Late LNB does not have a typical clinical picture, so a thorough history, laboratory and imaging exams are essential to distinguish it from other diseases. In patients with late LNB, the improvement of clinical symptoms after ATB treatment is only gradual and may not be complete. However, the persistence of symptoms is not a reason for repeated ATB treatment [11].

LNB is suspected based on classic clinical symptoms and patient history. To definitively confirm the diagnosis, presence of lymphocytic pleocytosis in the cerebrospinal fluid (CSF) and the intrathecal production of Borrelia (Bb) specific antibodies is required [15]. Direct diagnostic methods such as cultivation and detection of deoxyribonucleic acid (DNA) by polymerase chain reaction (PCR) in the CSF are of negligible importance due to their low sensitivity [20].

Currently available diagnostic methods for definitive confirmation of LNB are not satisfactory. Pleocytosis may be absent in some cases and intrathecal synthesis of Bb antibodies may be negative in approximately 10-30% of patients with the disease duration of less than 6 weeks [1]. In contrast, Bb antibodies tend to persist both in the serum and in the CSF long time after ATB treatment, which complicates the distinction between active and past infection [21, 22]. Therefore, new biological markers (e.g. cytokines, proteins, peptides, metabolites, etc.) are needed, which would make the diagnosis of LNB more effective.

On the one hand, diagnosis of LNB solely based on clinical symptoms certainly leads to antibiotic over-prescription and may contribute to development of ATB resistance. On the other hand, delayed ATB treatment of LNB may contribute to prolonged persistence of symptoms and sequels.

Understanding the anamnestic, clinical and laboratory factors associated with definite LNB is essential to support clinicians in management of complex cases with suspected LNB. We aimed to describe the typical anamnestic, clinical and laboratory features of patients diagnosed with LNB, to describe the differences between paediatric and adult cases and to assess the independent factors associated with definite LNB.

Methods

This is a retrospective observational study. Patients admitted to the Infectious diseases department of University hospital Bratislava, Slovakia, between September 2019 and May 2022, with suspicion of LNB, and available CSF results, were enrolled in the study.

We divided the patients into three categories according to the diagnostic criteria for LNB recommended by the European Federation of Neurological Societies (EFNS) [15]: A) cases with definite LNB, B) cases with possible LNB, C) cases with unlikely LNB (non-LNB controls), Table 1. Patients with definite LNB met the following diagnostic criteria: had (i) typical clinical symptoms of LNB, (ii) lymphocytic or mixed pleocytosis in the CSF (total leucocytes count >5/μl), (iii) positive specific Bb antibodies in both serum and CSF, (iv) confirmed intrathecal production of Bb antibodies (AI > 1.5) or direct evidence of Borrelia DNA in the CSF detected by PCR. In addition to the clinical symptoms, patients with possible LNB met two of the three diagnostic criteria mentioned above. As a case of early possible LNB (B2), we considered patients with typical clinical symptoms, lymphocytic pleocytosis and absence of Bb antibodies in the CSF and/or in the serum, if the symptoms lasted less than six weeks. Patients who did not meet the diagnostic criteria of definite or possible LNB were classified as non-LNB controls (Table 1).

We considered one or more of the following symptoms to be relevant clinical symptoms of LNB: facial nerve or other cranial nerve palsy, radicular pain, paresis of upper or lower limbs, headache, fever, and meningism.

Demographic, anamnestic, clinical and laboratory data were obtained from the medical records. We collected data in full respect of eth-

ical principles and the Personal Data Protection Act. The study was approved by the local ethical committee. MS Excel 2013 (v15.0) for electronic data registration and analysed the data using Stata release 16.0 statistical software (Stata Corp LP, College Station, TX).

Basic descriptive statistics were used in the first step. In the second step, univariate and multivariate logistic regression were performed to evaluate the association between anamnestic, clinical and laboratory parameters and the diagnosis of definite LNB. Patients with definite LNB were compared to non-LNB controls. Patients with possible LNB were excluded from this analysis. For hypothesis testing, a p-value less than 0.05 was considered statistically significant.

Results

In total, 139 patients were included in the analysis. 32 (23%) were classified as definite LNB, 23 (17%) as possible LNB and 84 (60%) as non-LNB cases. In the group of possible LNB, 3 (13%) patients presented with typical LNB symptoms, pleocytosis, positive Bb antibodies both in CSF and serum, but with negative Bb AI. 3 (13%) patients had positive Bb antibodies and intrathecal antibody production, but pleocytosis was lacking. 17 (74%) patients fulfilled the criteria of early possible LNB (typical neurological symptoms<6 weeks, pleocytocis, absence of Bb antibodies in the CSF and/or in the serum).

Patient characteristics

Patient characteristics are summarised in Table 2. Of 139 patients, 55.5% were females and 35.3% were children aged<18 years. Median age was 33 years (range 5-87 years). 56.3% and 34.8% of patients with definite and possible LNB reported a history of tick bite, and 21.9% and 8.7% a history of EM. Interestingly, history of EM was reported by 40.0% of men, but only by 13.4% of women with definite LNB. However, the association between sex and EM in patients with definite LNB was not significant (p=0.069).

Even though children present only 35.3% of patients, they account for 65.6% of definite LNB cases. Conversely, the proportion of patients with possible LNB is significantly higher in adults (69.6%). Definite LNB was diagnosed in 30.1% of women and 15.2% of men. In the group of definite LNB, women account for 68.8% of cases.

53.1% and 56.5% of patients with definite and possible LNB were admitted to hospital within 7 days and 82.2% and 95.6% within 1 months of the apparition of the symptoms. 36.9% and 60.7% of patients from the control group were admitted within one week and one month of the start of the symptoms. 9.4%, 4.3% of patients from the definite and possible LNB group and 22.6% of controls reported the duration of the symptoms more than 6 months (Figure 1).

Clinical symptoms

Peripheral facial nerve palsy (PFNP) was the most common clinical symptom in patients with definite LNB (65.6%) and one of the most common in those with possible LNB (21.7%), followed by headache (50.0% and 26.1%), fever (21.9% and 34.8%) and radicular pain (18.8% and 8.7%). In the control group, the patients presented the most often with headache (64.3%), fever (27.4%) and meningeal signs (15.5%). PFNP accounted only for 14.3% in the control group (Table 3).

Some clinical symptoms largely differed between children and adults (Table 4). PFNP was present in 76.2% of children with definite and 57.1% with possible LNB compared to 45.1% of adults with definite and 6.3% with possible LNB. In the group of definite LNB, radicular pain was common in adults (45.5%), but rare in children (4.8%).

Laboratory parameters

As a strict case definition for definite LNB was applied, all patients in this group had CSF pleocytosis (total leucocytes count >5/μl). Pleocytosis was also registered in 87.0% of possible LNB cases, but in only 17.9% of non LNB controls (Table 5).

Raised protein levels in the CSF (>400mg/L) were registered in 71% of patients with definite, 56.5% with possible LNB and in 38.1% of controls.

Intrathecal production of specific Bb IgG antibodies was present in 95.0% of patients with definite LNB. From the three patients with Bb AI<1.5, in one there was not enough CSF for the Bb antibodies measurement, but the patient was diagnosed with positive PCR in the CSF. In two other patients, the AI was not possible to calculate due to low levels of IgG antibodies in the serum.

Borrelia PCR was only performed in 17 patients in the study and showed one positive result (5.9%).

LNB treatment and patient outcome

62 (45%) patients in the study received ATB for LNB (Figure 2). ATB were prescribed to all patients with definite LNB, 71% of children and 56% of adults with possible LNB. Surprisingly, ATB were also given to 5% of children and 24% of adults in the control group. All patients were treated with third generation cephalosporin. The mean duration of ATB treatment during hospitalisation was 13,3 days. 16 patients (25.8%) started ATB before admission to hospital and 27 (43.5%) continued with ATB after the discharge from the hospital. 85.2% continued with oral doxycycline and the mean treatment at home was 10.8 days.

19 patients (32.8%) out of 58 with known treatment outcome reported complete relief of symptoms before the hospital discharge, 35 (60.3%) reported at least partial improvement. Four patients (6.9%) – all from the non-LNB control group reported no clinical improvement. We noted significant differences of perceived relief of symptoms between children and adults (Figure 4 and 5). 40% of children and only 27.3% of adults reported complete recovery of symptoms. Children reported complete recovery only in the definite and possible LNB group (Figure 5). On the contrary, adult patients reported the complete disappearance of the symptoms mainly in the control group and none of the definite LNB patients fully recovered. However, all adults with definite LNB reported at least partial clinical improvement at the hospital discharge (Figure 4).

Factors associated with definite LNB

Univariate and multivariate logistic regression analyses were performed to identify independent factors associated with definite LNB (Table 6).

Factors significantly associated with definite LNB in univariate analyses were (i) age < 18 years (OR 5.39, 95% CI 2.17-13.34, p < 0,0001), (ii) female gender (OR 6.34; 95% CI 1.04-5.59, p < 0.039) and (iii) facial nerve palsy (OR 10.11; 95% CI 3.65-27.95, p < 0.0001).

Factors independently associated with definite LNB in multivariable analyses were also (i) age < 18 years (aOR 7.89, 95% CI 2.00-31.03, p < 0,003), (ii) female gender (OR 6.34; 95% CI 1.66-24.17, p < 0.007), and (iii) facial nerve palsy (OR 10.54; 95% CI 2.41-55.19, p < 0.002).

Discussion

Peripheral facial nerve palsy was the most common clinical symptom in patients with definite LNB and the strongest predictor of LNB in our study. Three out of four children and almost half of adults with definite LNB presented with PFNP and patients with definite LNB were 20 times more likely to present with PFNP than controls (p = 0.0001). PFNP is well known predictor of LNB, and published data suggest that LNB is responsible for 2-16% of PFNP in Europe [23-25]. In the pediatric population, the proportion of LNB among cases of PFNP is even higher [26-29]. Several authors recommend in the differential diagnosis of PFNP routine realization of lumbar puncture and examination of intrathecal synthesis of Bb antibodies, especially if the PFNP is diagnosed at the time of increased occurrence of LNB from May to October [30-32]. One of the reasons is the different management of idiopathic PFNP and LNB and the concern that corticoid treatment recommended for idiopathic PFNP may in some cases worsen the course of LNB [33, 34].

Patients with radicular pain and with limb paresis had a higher chance of being diagnosed with LNB in our study compared to controls, but this association was not statistically significant (p = 0.081 and p = 0.075). Radicular pain is a frequent symptom of LNB and affects mainly adults within the so-called Banwarth syndrome [35]. High proportion of children with definite LNB in our study underweighted the presence of this symptom typically present in adults. Also, patients with Banwarth syndrome are often treated as outpatients and those might be underrepresented in our study population composed exclusively from hospitalized patients. It is reported in the literature that hemiparesis of upper or lower in LNB occurs mainly in the context of encephalitis [36]. This form of LNB was rare in our patients and may have been underdiagnosed.

The presence of meningeal signs was not positively associated with the diagnosis of LNB (p

= 0.187). This finding is consistent with published data [37, 38] and is important for the management of LNB, as this clinical symptom is often the most important decision factor for performing the lumbar puncture.

In our study, women were overrepresented in the group of definite LNB (69%) and in the multivariable analyses female gender was significantly associated with definite LNB (OR 6.32, p=0.007). Our results are in contradiction with previously published studies documenting a higher incidence of LNB among men [6, 39].

Children< 18 years were more likely to be diagnosed with definite LNB compared to adults (OR 7.9; p = 0.003). Several authors describe a higher incidence of LNB in children than in adults [40, 41]. The authors explain the different incidence between adults and children by the higher chance of children getting a tick. However, the data in the adult population may be underestimated in our study, because of the focus on hospitalized patients, while adults are more likely to be managed as outpatients.

56.3% of patients with definite LNB reported a history of tick bite and 21.9% history of EM. Neither of these factors was positively associated with the definite LNB (p = 0.118 and p = 0.100). The occurrence of EM in our study is lower than in published studies reporting 23-38% occurrence of EM in LNB cases (11, 35-38). The finding of a significantly lower occurrence of EM among women (13.4%) compared to men (40%) is striking, as the literature indicates a more frequent occurrence of EM in females. One of the explanations may be the lower detection of EM in our female population and the associated higher rate of dissemination of Borrelia to the nervous system. Another explanation is that in the absence of EM, a diagnosis of LNB was underdiagnosed in men. Both hypotheses would partially explain the lower representation of men in the group of definite LNB in our study, which is also in contradiction with the published data. We cannot exclude the hypothesis that in our population EM occurs more often in men and LNB in women. A study with a larger number of participants would be necessary to verify this hypothesis.

Our findings also point to the limited contribution of anamnestic data on history of tick bite and EM in the diagnosis of LNB.

Conclusions

We found that peripheral facial nerve palsy is the strongest predictor of definite LNB, and that the children<18 years and females in our study were more likely to be diagnosed with LNB.

Our study also suggests that anamnestic data on history of tick bite and EM contribute little to diagnosis of LNB. Therefore, we recommend that all the patients with PFNP, but also those with other typical symptoms of LNB undergo the lumbar puncture and the examination of intrathecal synthesis of Bb antibodies regardless of anamnestic data on EM and tick bite.

We also suggest that in the absence of LP or in the absence of intrathecal production of Bb antibodies in patients with PFNP occurring less than 6 weeks after tick bite, ATB treatment of LNB is preferred to corticosteroid treatment.

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AK drafted the manuscript, co-developed the study design, and participated in the data gathering and analysis and interpretation of results. KH and KG co-drafted the manuscript and participated in the data analysis and interpretation of results. All authors have read and approved the final manuscript.

Ethics declarations: Ethics approval and consent to participate: This study was carried out in concordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans and was approved by the local Ethical Committee of University Hospital in Bratislava (number 14/2022). Written informed consent for participation was obtained from all participants before enrolment to the study. No administrative permission to access the raw data used in this study was required by local authorities or hospital. The raw data were fully anonymized before its use. The investigators preserved the full anonymity of all participants.

Consent for publication: Not applicable.

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Tables and figures

Table 1 Division of patients into definite or possible LNB and non-LNB category

Category	Diagnosis	Pleocytosis	Bb AB serum	Bb AB CSF	AI
A	Definite LNB	+	+	+	+
B1	Possible LNB	+/-	+	+	+
B2*	Early possible LNB	+	+/-	-	-
C	Non-LNB controls	+	-	-	-

LNB: Lyme neuroborreliosis, Bb: Borrelia specific antibodies, AB: antibodies, AI: antibody index, CSF: cerebrospinal fluid
* Only applicable for patients with symptoms duration<6 weeks

Table 2 Patient characteristics

Characteristic	Definite LNB n=32	Possible LNB n=23	Non-LNB n=84	TOTAL n=139
Total patients, n (%)	32 (23.1)	23 (16.5)	84 (60.4)	139 (100.0)
Sex, n (%)				
Females	22 (68.7)	13 (56.5)	38 (45.2)	73 (55.5)+
Males	10 (31.3)	10 (43.5)	46 (54.8)	66 (47.5)
Age,y, median (range)	12 (5–81)	33 (7–75)	37 (5-87)	33 (5–87)
Children<18 years, n (%)	21 (65.6)	7 (30.4)	21 (25.0)	49 (35.3)
History of tick bite, n (%)	18 (56.3)	8 (34.8)	34 (40.5)	60 (43.2)
History of erythema migrans, n (%)	7 (21.9)	2 (8.7)	13 (15.5)	22 (15.9)

LNB: Lyme neuroborreliosis, n: number, y: years

Table 3 Clinical symptoms of patients according to the diagnostic category

Symptom	Definite LNB n=32	Possible LNB n=23	Non-LNB n=84
Facial nerve palsy, n (%)	21 (65.6)	5 (21.7)	12 (14.3)
Bilateral	2	1	0
Abducens nerve palsy, n (%)	1 (3.1)	1 (4.4)	4 (4.8)
Limb paresis, n (%)	3 (9.4)	2 (8.7)	9 (10.7)
Radicular pain, n (%)	6 (18.8)	2 (8.7)	11 (13.1)
Headache, n (%)	16 (50.0)	6 (26.1)	54 (64.3)
Fever, n (%)	7 (21.9)	8 (34.8)	23 (27.4)
Meningism, n (%)	4 (12.5)	6 (26.1)	13 (15.5)

LNB: neuroborreliosis, n: number

Table 4 Clinical symptoms according to diagnostic category and age group

Symptom	Definite LNB Adults n=21	<18 years n=11	Possible LNB Adults n=7	<18 years n=16
Facial nerve palsy, n (%)	16 (76.2)	5 (45.5)	4 (57.1)	1 (6.3)
Bilateral	1	1	0	1
Abducens nerve palsy, n (%)	0	1 (4.8)	0	1 (6.3)
Limb paresis, n (%)	1 (4.8)	2 (18.2)	0	2 (15.5)
Radicular pain, n (%)	1 (4.8)	5 (45.5)	0	2 (15.5)
Headache, n (%)	11 (52.4)	5 (45.5)	5 (71.4)	13 (81.3)
Fever, n (%)	5 (23.8)	2 (18.2)	2 (28.6)	6 (37.5)
Meningism, n (%)	2 (9.5)	2 (18.2)	1 (14.3)	5 (31.3)

LNB: Lyme neuroborreliosis, n: number

Table 5 Laboratory parameters according to the diagnostic category

Laboratory parameters	Result available n=139	Definite LNB n=32	Possible LNB n=23	Non-LNB n=84
CSF leucocytes > 5/μL, n (%)	139 (100.0)	32 (100.0)	20 (87.0)	15 (17.9)
CSF proteins > 400mg/L, n (%)	139 (100.0)	22 (71.0)	13 (56.5)	32 (38.1)
CSF Bb AI IgG > 1.5, n (%)	132 (95.0)	29 (100.0)	3 (13.0)	1 (1.3)
CSF Bb IgM positive, n (%)	130 (93.5)	15 (51.7)	3 (13.6)	0
CSF Bb PCR positive, n (%)	17 (12.2)	1 (50.0)	0	0
Serum IgM positive, n (%)	134 (96.5)	26 (83.9)	7 (30.4)	23 (28.8)
Serum IgG positive, n (%)	134 (96.5)	27 (87.1)	12 (52.2)	16 (20.0)
Serum IgM+IgG positive, n (%)	134 (96.5)	23 (74.2)	5 (21.7)	8 (10.0)

LNB: Lyme neuroborreliosis, CSF: cerebrospinal fluid, Bb: borrelia specific antibidies, AI: antibody index, IgM and IgG: immunoglobulins M and G

Table 6 Factors associated with definite LNB, univariate and multivariate logistic regression analyses

Variable	Non-adjusted OR	95% CI	P value	Adjusted OR	95% CI	P value
Female	6.34	1.04-5.59	0.039	6.32	1.66-24.17	0.007
Age<18 years	5.39	2.17-13.34	<0.0001	7.89	2.00-31.03	0.003
Symptoms<30 days	2.02	0.75-5.42	0.155	0.40	0.06-2.30	0.306
No history of ATB	1.25	0.46-3.41	0.658	1.55	0.29-8.26	0.607
History of EM	1.71	0.63-4.71	0.287	3.53	0.72-17.22	0.118
History of tick bite	1.99	0.88-4.47	0.090	2.67	0.83-8.59	0.100
Facial nerve palsy	10.11	3.65-27.95	<0.0001	19.84	3.60-109.4	0.001
Limb paresis	1.11	0.28-4.26	0.882	6.15	0.83-45.52	0.075
Headache	0.49	0.22-1.10	0.076	0.90	0.25-3.27	0.867
Meningism	0.66	0.21-2.12	0.484	3.78	0.50-28.58	0.197
Fever	0.69	0.27-1.76	0.431	1.21	0.20-7.49	0.835
Radicular pain	1.67	0.57-4.85	0.342	4.14	0.84-20.45	0.081

OR: odds ratio, CI: confidence interval, ATB: antibiotics, EM: erythema migrans

Figure 1 Duration of symptoms before admission to hospital, n=139

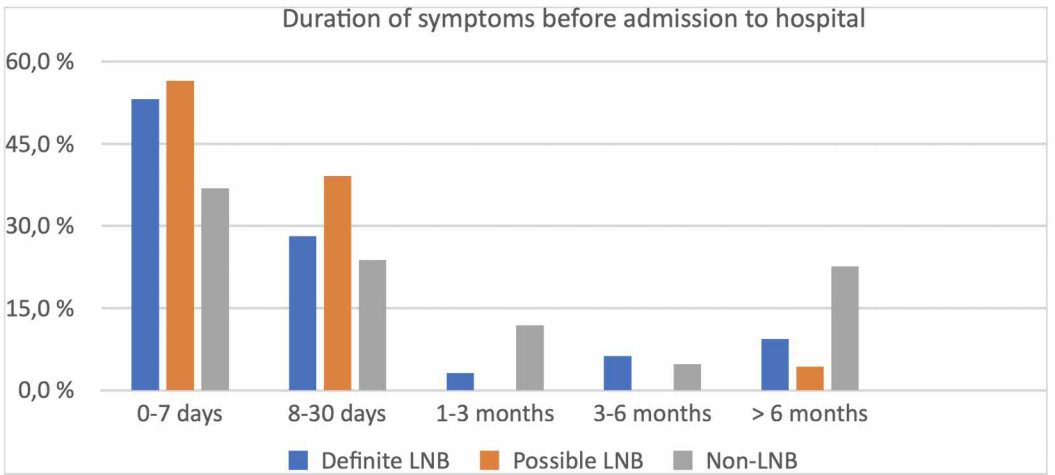


Figure 2 Patients treated with antibiotics for neuroborreliosis, n= 62

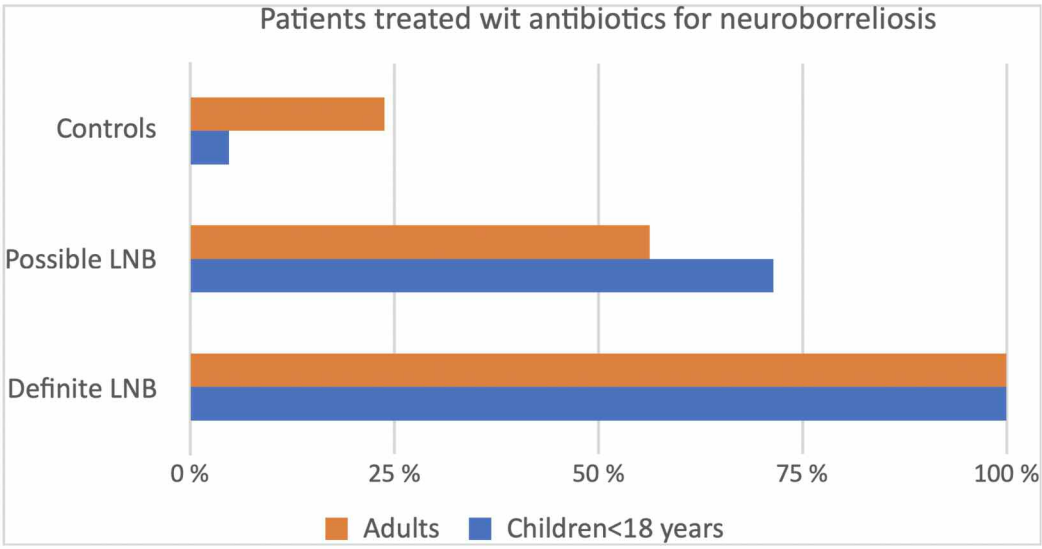


Figure 3 Symptoms improvement at hospital discharge in treated adults, n=33

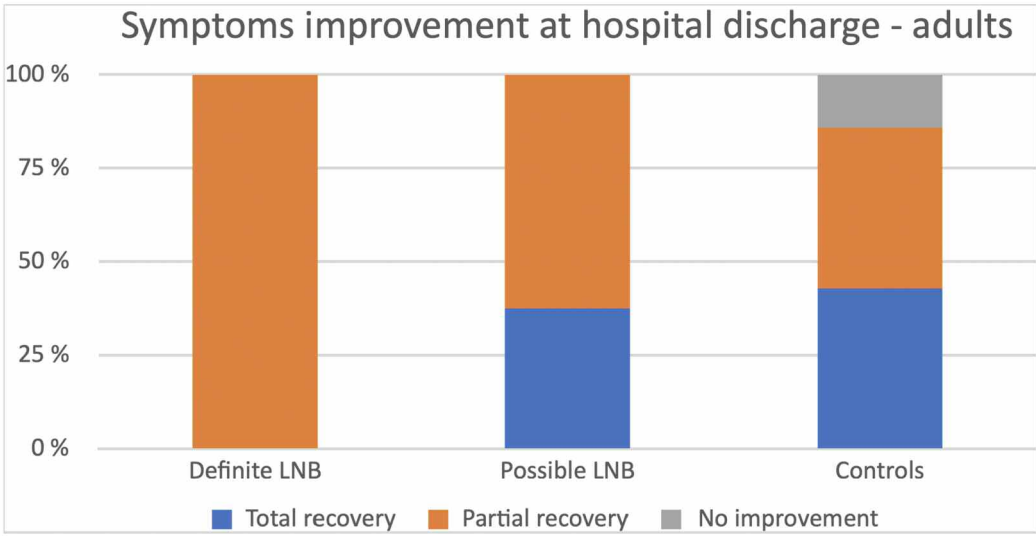
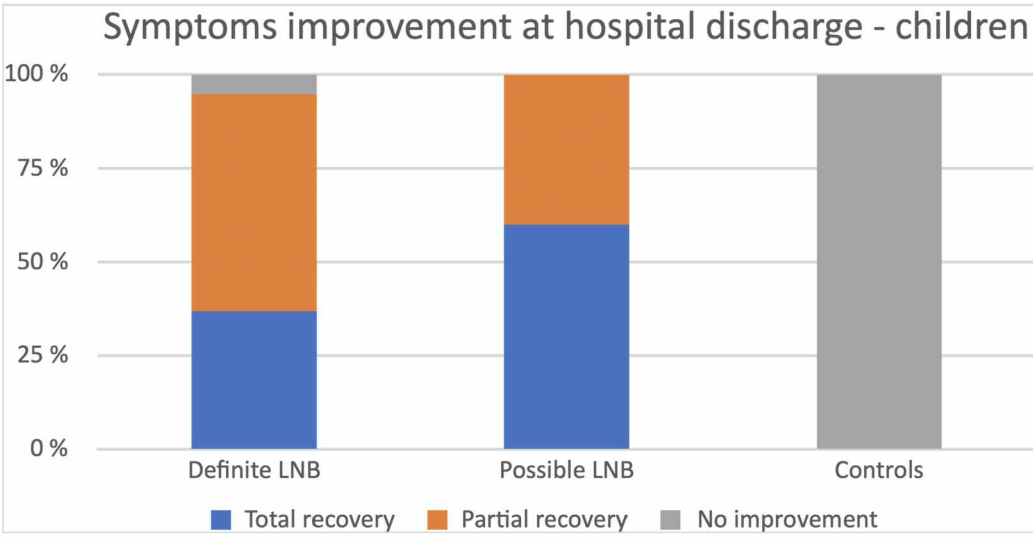


Figure 4 Symptoms improvement at hospital discharge in treated children, n=25



References

1. KOEDEL U, FINGERLE V, PFISTER H W (2015) *Lyme neuroborreliosis-epidemiology, diagnosis and management*. Nat Rev Neurol, 2015. 11(8): p. 446-56.
2. MARQUES A R (2015) *Lyme Neuroborreliosis*. Continuum (Minneap Minn), 2015. 21(6 Neuroinfectious Disease): p. 1729-44.
3. RAUER S *et al*. (2018) *Lyme Neuroborreliosis*. Dtsch Arztebl Int, 2018. 115(45): p. 751-756.
4. STRLE F, STANEK G (2009) *Clinical manifestations and diagnosis of lyme borreliosis*. Curr Probl Dermatol, 2009. 37: p. 51-110.
5. DERSCH R, RAUER S (2017) *[Neuroborreliosis - Diagnostics, treatment and course]*. Nervenarzt, 2017. 88(4): p. 419-431.
6. SCHWENKENBECHER P *et al*. (2017) *Common and uncommon neurological manifestations of neuroborreliosis leading to hospitalization*. BMC Infect Dis, 2017. 17(1): p. 90.
7. HANSEN K, LEBECH A M *The clinical and epidemiological profile of Lyme neuroborreliosis in Denmark 1985-1990. A prospective study of 187 patients with Borrelia burgdorferi specific intrathecal antibody production*. Brain, 1992. 115 (Pt 2): p. 399-423.
8. DJUKIC M *et al*. (2012) *Cerebrospinal fluid findings in adults with acute Lyme neuroborreliosis*. J Neurol, 2012. 259(4): p. 630-6.
9. OSCHMANN P *et al*. (1998) *Stages and syndromes of neuroborreliosis*. Journal of Neurology, 1998. 245(5): p. 262-272.
10. PFISTER H W *et al*. *Bannwarth's syndrome and the enlarged neurological spectrum of arthropod-borne borreliosis*. Zentralbl Bakteriol Mikrobiol Hyg A, 1987. 263(3): p. 343-7.
11. RAUER S *et al*. (2020) *Guidelines for diagnosis and treatment in neurology - Lyme neuroborreliosis*. German medical science : GMS e-journal, 2020. 18: p. Doc03-Doc03.
12. RUPPRECHT T A *et al*. (2008) *The pathogenesis of lyme neuroborreliosis: from infection to inflammation*. Molecular medicine (Cambridge, Mass.), 2008. 14(3-4): p. 205-212.
13. REIK L *et al*. (1979) *Neurologic abnormalities of Lyme disease*. Medicine (Baltimore), 1979. 58(4): p. 281-94.
14. KOHLER J, SCHNEIDER H, VOGT A (1989) *High-dose intravenous penicillin G does not prevent further progression in early neurological manifestation of Lyme borreliosis*. Infection, 1989. 17(4): p. 216-7.

15. MYGLAND A *et al*. (2010) *EFNS guidelines on the diagnosis and management of European Lyme neuroborreliosis*. Eur J Neurol, 2010. 17(1): p. 8-16, e1-4.
16. MARQUES A *et al*. (2022) *Characteristics and outcome of facial nerve palsy from Lyme neuroborreliosis in the United States*. Annals of clinical and translational neurology, 2022. 9(1): p. 41-49.
17. DRACK F, WEISSERT M (2012) *Outcome of peripheral facial palsy in children – A catamnestic study*. European journal of paediatric neurology : EJPN : official journal of the European Paediatric Neurology Society, 2012. 17.
18. KOWALSKI T J *et al*. (2010) *Antibiotic Treatment Duration and Long-Term Outcomes of Patients with Early Lyme Disease from a Lyme Disease–Hyperendemic Area*. Clinical Infectious Diseases, 2010. 50(4): p. 512-520.
19. KAMINSKY A L *et al*. (2020) *Confirmed cases of Neuroborreliosis with involvement of peripheral nervous system: Description of a cohort*. Medicine, 2020. 99(40): p. e21986-e21986.
20. WILSKE B, FINGERLE V, SCHULTE-SPECHTEL U (2007) *Microbiological and serological diagnosis of Lyme borreliosis*. FEMS Immunol Med Microbiol, 2007. 49(1): p. 13-21.
21. MARTIN R *et al*. (1988) *Persistent intrathecal secretion of oligoclonal, Borrelia burgdorferi-specific IgG in chronic meningoradiculomyelitis*. J Neurol, 1988. 235(4): p. 229-33.
22. HAMMERS-BERGGREN S *et al*. (1994) *Serological follow-up after treatment of patients with erythema migrans and neuroborreliosis*. J Clin Microbiol, 1994. **32**(6): p. 1519-25.
23. PELTOMAA M *et al*. (2002) *Lyme borreliosis and facial paralysis--a prospective analysis of risk factors and outcome*. Am J Otolaryngol, 2002. **23**(3): p. 125-32.
24. LJØSTAD U *et al*. (2005) *Acute peripheral facial palsy in adults*. J Neurol, 2005. **252**(6): p. 672-6.
25. HOHMAN M H, HADLOCK T A (2000) *Etiology, diagnosis, and management of facial palsy: 2000 patients at a facial nerve center.* Laryngoscope, 2014. **124**(7): p. E283-93.
26. TVEITNES D, ØYMAR K, NATÅS O, *Acute facial nerve palsy in children: how often is it lyme borreliosis?* Scand J Infect Dis, 2007. **39**(5): p. 425-31.
27. BRUINSMA R A *et al*. (2021) *Acute facial nerve palsy in children in a Lyme disease-endemic area in the Netherlands*. Eur J Clin Microbiol Infect Dis, 2021. **40**(11): p. 2455-2458.
28. PAPAN C *et al* (2019) *Infectious causes of peripheral facial nerve palsy in children-a retrospective cohort study with long-term follow-up*. Eur J Clin Microbiol Infect Dis, 2019. **38**(11): p. 2177-2184.
29. NIGROVIC L E *et al*. (2008) *Clinical predictors of Lyme disease among children with a peripheral facial palsy at an emergency department in a Lyme disease-endemic area*. Pediatrics, 2008. **122**(5): p. e1080-5.
30. KINDLER W *et al*. (2016) *Peripheral facial palsy as an initial symptom of Lyme neuroborreliosis in an Austrian endemic area*. Wien Klin Wochenschr, 2016. **128**(21-22): p. 837-840.
31. HECKMANN J G *et al*. (2019) *The Diagnosis and Treatment of Idiopathic Facial Paresis (Bell's Palsy)*. Deutsches Arzteblatt international, 2019. **116**(41): p. 692-702.
32. BIERMAN S M *et al*. (2019) *Incidence and characteristics of Lyme neuroborreliosis in adult patients with facial palsy in an endemic area in the Netherlands*. Epidemiol Infect, 2019. **147**: p. e160.
33. JOWETT N *et al*. (2017) *Steroid use in Lyme disease-associated facial palsy is associated with worse long-term outcomes*. Laryngoscope, 2017. **127**(6): p. 1451-1458.
34. WORMSER G P *et al*. *Outcome of facial palsy from Lyme disease in prospectively followed patients who had received corticosteroids*. Diagn Microbiol Infect Dis, 2018. **91**(4): p. 336-338.
35. OGRINC K *et al*. (2016) *Course and Outcome of Early European Lyme Neuroborreliosis (Bannwarth Syndrome): Clinical and Laboratory Findings*. Clinical Infec-

tious Diseases, 2016. **63**(3): p. 346-353.
36. KNUDTZEN F C *et al*. (2022) *Lyme neuroborreliosis with encephalitis; a systematic literature review and a Scandinavian cohort study*. Clin Microbiol Infect, 2022. **28**(5): p. 649-656.
37. ZULFIQAR S *et al*. (2021) *The many manifestations of a single disease: neuroborreliosis*. Journal of community hospital internal medicine perspectives, 2021. **11**(1): p. 56-59.
38. GARCIA-MONCO J C, Benach J L (2019) *Lyme Neuroborreliosis: Clinical Outcomes, Controversy, Pathogenesis, and Polymicrobial Infections*. Annals of neurology, 2019. **85**(1): p. 21-31.
39. MARQUES A R, STRLE F, WORMSER G P (2021) *Comparison of Lyme Disease in the United States and Europe*. Emerg Infect Dis, 2021. **27**(8): p. 2017-2024.
40. LOPEZ-ALBEROLA R F (2006) *Neuroborreliosis and the pediatric population: a review*. Rev Neurol, 2006. **42 Suppl 3**: p. S91-6.
41. CHRISTEN H J (1996) *Lyme neuroborreliosis in children*. Ann Med, 1996. **28**(3): p. 235-40.

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