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VIRŠĖLYJE – prof. dr. Vestos Steiblienės pacientės darbas „Prisilietimo magija”

Pacientės mintys:

“Kai atrodo netekau galimybes tapyti ir jausti spalvomis, mano gyvenime atsirado
piešimas juoda-balta. Šį darbą pavadinau “Prisilietimo magija”. Reikia tik pastebėti
sujudinto vandens raibuliavimo sukurtą pasirodymą, kad gyvenime atsirastų šiek tiek
daugiau magijos”

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Dear Readers,

It is with great pleasure and enthusiasm that we present to you the first number of year 2023 of the Journal “Biological Psychiatry and Psychopharmacology.” As editors, we embark on this remarkable journey to bring you a diverse range of articles encompassing the latest research and developments in the fields of psychiatry, psychopharmacology, and mental health.

In our inaugural issue, we are delighted to feature three compelling articles that offer valuable insights into critical aspects of psychiatric research and practice.

The first article, a narrative literature review titled “Association between Atrial Fibrillation and Cognitive Decline – Risk Factors and Prevention”, authored by medical students Gabriele Miliunaite, Justina Masionyte, and their esteemed supervisor, Prof. Vesta Steibliene from the Psychiatry Clinic, Lithuanian University of Health Sciences, sheds light on the crucial relationship between atrial fibrillation and cognitive decline. The authors meticulously discuss various modifiable risk factors and prevention strategies to mitigate the development of dementia, emphasizing the significance of a healthy lifestyle and targeted healthcare interventions.

Next, we present a comprehensive literature review on the topic of “Mental Health of Refugees” by Gabriele Lekaviciute, a medical student from the Lithuanian University of Health Sciences. This review delves into the challenges faced by refugees as they integrate into new societies, examining the profound impact of traumatic experiences on their mental health, particularly focusing on post-traumatic stress disorder (PTSD). The article highlights the need for tailored prevention and treatment guidelines to address the mental health issues faced by this vulnerable population.

Our third article takes the form of a clinical case report titled “Haloperidol to Treat Psychosis – Is ST Elevation Just an Unfortunate Coincidence?” Expertly presented by psychiatry residents Dr. Paulina Tursaitė, Dr. Greta Murauskiene, Dr. Kotryna Sudziute, and their supervisor, psychiatrist Dr. Egle Milasauskiene, this report centers on a challenging case involving the use of haloperidol, an antipsychotic medication with well-known cardiovascular side effects. The authors share valuable insights into the careful monitoring and management required when administering such medications, especially in patients with existing cardiovascular risks.

In addition to these thought-provoking articles, we are delighted to include a Lithuanian version of the “Compulsive Internet Use Scale (CIUS)” by Prof. Roma Jusiene from Vilnius University, Institute of Psychology, Faculty of Philosophy. This scale will undoubtedly serve as a valuable resource for researchers and practitioners in studying and addressing internet-related compulsive behaviors.

Lastly, as part of this issue’s supplement, we proudly present the 38 theses from the “26th International Conference of the European Association of Substance Abuse Research” held in Kaunas, Lithuania, in May 2023. This compilation encompasses the latest advancements and diverse perspectives on substance abuse research from esteemed international scholars.

We sincerely hope that this inaugural issue of “Biological Psychiatry and Psychopharmacology” will captivate your interest, inspire further research, and contribute to the advancement of mental health and psychiatric sciences. We extend our gratitude to all the authors, reviewers, and contributors who have made this journal’s launch possible.

Thank you for joining us on this intellectual expedition, and we wish you an enlightening and enjoyable reading experience.

With warm regards,

Prof. Vesta Steibliene,

President of Lithuanian Society of Biological Psychiatry,

Editor-in-Field of General Hospital Psychiatry at “Biological Psychiatry and Psychopharmacology

ASSOCIATION BETWEEN ATRIAL FIBRILLATION AND COGNITIVE DECLINE – RISK FACTORS AND PREVENTION: A NARRATIVE LITERATURE REVIEW

Prieširdžių virpėjimo sąsajos su pažintinių funkcijų sutrikimu – rizikos veiksniai ir prevencijos galimybės: literatūros apžvalga

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SUMMARY

Introduction. In order to prevent or stop the progression of atrial fibrillation and cognitive decline, it is very important to focus on a healthy lifestyle, controlling obesity, arterial hypertension, thyroid function, glycaemic control, and improving sleep quality and mental health. In this article, we will review the overlapping risk factors of atrial fibrillation and cognitive decline and prevention methods that reduce the development of dementia.

Aim. To overview the literature data on the association between atrial fibrillation and cognitive decline by discussing the most common modifiable risk factors and summarising the prevention options.

Methods. The literature search was performed in the computerised bibliographic databases of PubMed and ScienceDirect, using keywords such as “atrial fibrillation”, “cognitive decline”, “risk factors for atrial fibrillation and dementia”, “prevention of atrial fibrillation and dementia”. Out of the 1457 we used, 72 english articles for this review. The citation period was not restricted.

Results. A healthy lifestyle, arterial hypertension and glycaemic control, sleep quality and care of mental health are the most effective prevention methods for atrial fibrillation and dementia.

Key words: atrial fibrillation, dementia, cognitive decline, risk factors, prevention.

SANTRAUKA

Įvadas. Sveika gyvensena, nutukimo, arterinės hipertenzijos, skydliaukės veiklos ir glikemijos kontrolė, miego kokybė bei emocinė sveikata yra svarbiausi veiksniai, mažinantys prieširdžių virpėjimo ir kognityvinių funkcijų sutrikimų išsivystymo tikimybę. Šiame straipsnyje apžvelgsime bendruosius prieširdžių virpėjimo ir pažintinių funkcijų sutrikimų rizikos veiksnius bei prevencijos metodus, mažinančius kognityvinių sutrikimų išsivystymą.

Tikslas. Apžvelgti literatūros duomenis apie ryšį tarp prieširdžių virpėjimo ir pažintinių funkcijų silpnėjimo, aptariant dažniausiai pasitaikančius modifikuojamus rizikos veiksnius ir apibendrinti prevencijos galimybes.

Tyrimo medžiaga ir metodai. Literatūros paieška atlikta kompiuterinėse bibliografinėse mokslinių darbų bazėse Pubmed ir ScienceDirect naudojant raktinius žodžius ir jų derinius: „prieširdžių virpėjimas“, „demencija“, „pažintinių funkcijų sutrikimai“, „prieširdžių virpėjimo ir demencijos rizikos veiksniai“, „prieširdžių virpėjimo ir demencijos prevencija“. Iš 1457 atrinkome tinkančius 72 anglų kalba parašytus straipsnius. Pirmenybę teikėme pastarųjų 5 metų leidiniams, tačiau citavimo laikotarpio ribojimas nenustatytas.

Rezultatai. Sveika gyvensena, arterinės hipertenzijos ir glikemijos kontrolė, kokybiškas miegas bei rūpinimasis emocine sveikata yra efektyviausi prieširdžių virpėjimo ir demencijos prevencijos metodai.

Raktiniai žodžiai: prieširdžių virpėjimas, demencija, pažintinių funkcijų sutrikimai, rizikos veiksniai, prevencija.

INTRODUCTION

It is widely accepted that cerebral health has a close relation to cardiovascular state and diseases [1]. Atrial fibrillation (AF) and dementia are one of the most common diseases in aging societies worldwide [2]. In the adult general population, the prevalence of AF is about 2–4%, rising to above 16% in individuals > 70 years [3]. Progressive deterioration of memory and other cognitive issues are the main symptoms of a disabling syndrome of the brain called dementia [2]. Approximately 50 million people are living with this pathology around the world. There are numbers of studies that confirm that AF can affect cognition negatively [4]. According to scientific data, the risk of developing dementia can increase by 40% in people with AF [5]. Arrhythmia is a major risk factor for ischaemic stroke and such patients have a higher risk of cognitive decline [6]. Besides, studies evaluating a casual relationship of AF and dementia has to account for overlapping risk factors. This suggests that the connection is really important. Scientists, searching relation between AF and dementia, advise to consider the influence of obesity, diabetes mellitus, arterial hypertension, obstructive sleep apnoea (OSA), heavy alcohol consumption and psychological stress to the progression of these diseases [1]. Identification of modifiable risk factors contributes to finding a proper way to manage prevention and improve treatment of these health issues [7]. Talking about the prevention of AF and dementia, it is recommended to control your body weight, heart rhythm, and high blood pressure, ensure a good sleep quality, avoid smoking and alcohol, engage in physical activities, and take care of your mental health from a young age [7–9].

RISK FACTORS OF ATRIAL FIBRILLATION AND COGNITIVE DECLINE

Nowadays, talking about the risk factors of atrial fibrillation and dementia, we often mention arterial hypertension, diabetes or thyroid diseases, but it is also very important to see the significance of lifestyle factors such as alcohol, obesity, and psychological stress emphasised. Obstructive sleep apnoea is another well-known reason for the development and maintenance of atrial fibrillation and cognitive decline [10,11]. The discovery of new modifiable risk factors and triggers could also contribute to the global strategy to reduce arrhythmia and be an effective way to prevent dementia [12].

Obesity

The reports state that overweight and obesity continue to be a fast-growing problem worldwide. These days, the number of people with excess body weight reaching about 30% (> 2 billion) of the world population [10]. Talking about increased risk of AF, obesity is associated with atrial dilatation, chronic pro-inflammatory status, and other conditions that can cause arrhythmia, such as hypertension, type 2 diabetes mellitus and obstructive sleep apnoea [12]. Also, studies have shown a strong correlation between epicardial adipose tissue excess and heart rhythm disorders [13]. Several clinical trials using cardiac imaging (especially computed tomography) have demonstrated higher amounts of adipose tissue in patients with AF than in individuals without this pathology [12].

Epicardial fat excess leads to local inflammation, fibrosis, adipocyte infiltration, oxidative stress and autonomic nervous system modulation. All these elements are significant in the pathogenesis of AF [14]. Increased body weight is also associated with grey matter atrophy in the temporal, frontal and occipital cortices, hippocampus, thalamus and midbrain, and reduce the integrity of white matter throughout the brain [15]. Systematic reviews indicate that BMI ≤ 30 kg/m² impairs memory, intelligence, attention, cognitive flexibility, processing speed and executive function [16].

Diabetes mellitus

Diabetes mellitus – a group of metabolic diseases characterised by chronic hyperglycaemia because of defects in insulin secretion or insulin action [17]. This condition can result in multiple organ damage including the eyes, nerves, kidneys, heart and blood vessels [18]. In the past few years, the influence of diabetes mellitus on cognitive decline has been one of the main topic of research studies and discussion [19]. Patients with type 2 diabetes are around two to four times more likely to develop dementia compared to healthy people [20]. Scientists of Wenzhou University conducted a study and found elevated lactate levels in the hippocampus of diabetic rats. The research revealed that excess lactate secretion in this brain region plays an inhibitory function on memory and cognition ability, through lactate receptor GPR81 – PKA – CREB depended mechanism [21]. It is important to mention that this metabolic syndrome not only affects brain cells, but also has impact of other risk factors on cognitive decline. One of them is AF [22]. The mechanism underlying pathophysiology is based on structural, electrical, electromechanical and autonomic remodelling caused by oxidative stress, inflammation and glycaemic fluctuations [23]. Inefficient cardiac performance may result in cerebral hypoperfusion and clinically silent cerebral infarction, which compromises cognitive brain function [24].

Arterial hypertension

For many years, arterial hypertension remains the most common risk factor for cardiovascular diseases [25]. Elevated blood pressure leads to arterial stiffness that is one of the main aspects in development of AF and dementia [26,27]. Higher arterial stiffness increases the pressure load over the left ventricle and causes diastolic dysfunction. At the same time, it would lead to left atrium distention and structural remodelling leading to electrical heart disorders [26]. A longitudinal cohort study (The White II study) conducted in Great Britain proved that elevated arterial stiffness is associated with faster cognitive decline. Aortic pulse wave velocity was measured amongst 4300 individuals (mean \pm standard deviation age 65.1 ± 5.2 years) and cognitive function was examined using memory, reasoning and fluency tests. Results indicate that high arterial stiffness is associated with cognitive decline. The stiff aorta loses its cushioning capacity and increases pulsatile flow in the brain that may accelerate intracranial stenosis, and dysfunction in the cerebral microcirculation or cause thrombosis and microinfarcts [28]. Also, chronic cerebral hypoperfusion may induce cerebral white matter injury or lead to toxic metabolic byproducts accumulation [29]. All

these changes negatively affect executive function, memory and global cognition [30].

Thyroid diseases

It is well-known that hyperthyroidism is one of the risk factors for AF. The prevalence of AF in patients with known thyrotoxicosis is from 16% to 60% [11]. Arrhythmia is caused by increased sympathetic function and decreased atrial refractory period because elevated thyroid hormones such as free thyroxine (FT4) and triiodothyronine (T3) act on the heart's β_1 – adrenergic and muscarinic receptors. The process of the development of AF is associated with the thyroid hormone's effect on conduction in atrial cardiomyocytes, with increased spontaneous activity in the pulmonary veins, shorter duration of action potentials, faster beating rates, and higher incidence of delays after depolarisation [31]. Otherwise, the prospective cohort studies have reported the association between subclinical hyperthyroidism and AF. Subclinical hyperthyroidism is a condition characterised by low serum thyroid-stimulating hormone (TSH), but normal serum FT4 and T3 concentrations. Scientists analysed 8711 participants from 5 prospective cohorts and results indicated that the risk of AF was increased to 41.5% for those with subclinical hyperthyroidism. Also, AF incidence was higher in individuals with thyrotropin levels lower than 0.10 mIU/L compared with concentrations between 0.10 and 0.44 mIU/L [32]. Subclinical hyperthyroidism is associated with higher heart rate at rest, elevated frequency of atrial and ventricular premature beats, increased left ventricular mass index, and cardiac output. In Copenhagen, a large population cohort study (586 460 individuals) has shown that the highest relation between the risk of AF and thyroid dysfunction was seen amongst young women with subclinical hyperthyroidism and young men with overt hyperthyroidism [33].

Obstructive sleep apnoea

Obstructive sleep apnoea (OSA) – a chronic breathing disorder characterised by repetitive upper airway collapse during sleep [34]. Approximately 25% of adults in the US, with similar incidences in other Western countries are living with this disease [35]. Patients usually suffer from snoring, fatigue and excessive daytime sleepiness despite getting the recommended 7 to 9 hours of sleep [36]. OSA not only impairs the quality of life but also can lead to serious health problems, including cardiovascular or nervous systems. Scientific reviews show that chronic intermittent hypoxia during sleep elicited damage in the hippocampus and cortex resulting in learning, mnemonic, attentional and executive function deficits [37]. In France, during a 12-year period, a prospective cohort study revealed that excessive daytime sleepiness was associated with an increased risk of 21% for dementia [38]. Also, it is considered that acute apneic episodes cause hypoxia and hypercapnia, alteration in intrathoracic pressure increased sympathetic tone and autonomic dysregulation. It may result in structural and functional atrial remodeling and lead to development of AF [39]. The relation between OSA and AF was confirmed by Belgian, Italian and Dutch scientists. They carried out a meta-analysis including 20 scientific studies with a total of 54,271 subjects. The incidence of AF was 88%

higher in patients with OSA [40].

Alcohol consumption

Alcohol is one of the most commonly used substances for entertainment and it is a major public health problem associated with more than 200 diseases [41]. The World Health Organization (WHO) has published the TOP 10 countries with the highest alcohol consumption in 2019. The majority of these countries are located in Europe (9 out of 10), while Lithuania is in the 4th place with 12,78 liters of pure alcohol per year among all adults aged 15 and over [42]. According to the latest research data, for daily drinkers AF incidence increases by about 8%. The pathophysiological mechanisms responsible for the relationship between ethanol and AF may include electrical atrial remodeling, inflammation, oxidative stress, fibrosis of cardiac tissue, excess adrenaline secretion and sympathetic activation [43]. Heavy alcohol intake can lead to weight gain and arterial hypertension, providing further to arrhythmia initiation [7]. On the other hand, daily drinking has a harmful effect not only on the heart but also causes changes in brain structures. Systematic reviews indicated that drinking more than 60g of pure alcohol per day for men and more the 40g of pure alcohol for women was associated with an increased risk of cognitive decline or dementia [44]. The main reasons for brain damage are a neurotoxic effect mediated by glutamatergic excitotoxicity (induced through up-regulation of NMDA receptors) and thiamine deficiency caused by poor nutrition, malabsorption in the digestive tract, and liver failure in patients with alcohol abuse. Cerebral damage is associated with disorders of anterograde memory, executive function, (decision-making, temporal orientation, emotional judgments and verbal fluency), visuospatial tasks, working memory and latency time. Moreover, it is estimated that dementia is diagnosed in 10–24% of alcohol abusers [45].

Psychological stress

Numerous studies and experiments have shown that chronic stress is linked to cognitive functions in many ways. Long-term stress creates high levels of glucocorticoids in the blood and causes functional and structural changes in the hippocampus, which are responsible for cognitive function. This neurological damage has a negative effect on cognition, memory and learning abilities [46,47]. Various traumatic events such as a serious accident, war, sexual assault, abuse, or environmental catastrophe may lead to development of post-traumatic stress disorder (PTSD). Epidemiological studies of military veterans and civilians have revealed that patients with PTSD have up to 4 times higher risk of dementia than healthy people [48]. Additionally, newly discovered evidence suggests that psychological distress is also associated with the initiation and progression of heart rhythm disorders. A prospective cohort study of 1.1 million young and middle-aged veterans (mean age, 30.29 ± 9.19 years) proved that PTSD can increase the risk of early incident AF by 13% [49]. Chronic anxiety may lead to dysfunction of autonomic nervous system, hormonal imbalance, catecholamine overload and somnopathy. All these changes impair atrial electrophysiology and structure, stimulate sympathetic activation and facilitate AF initiation [7].

PREVENTION OF ATRIAL FIBRILLATION AND COGNITIVE DECLINE

Many of the factors that cause atrial fibrillation and dementia are potentially reversible, and new research shows that resolving modifiable risk factors may be effective for both disease prevention [50]. Furthermore, oral anticoagulation outperforms no anticoagulation therapy or aspirin treatment [51].

Nutrition

A properly balanced diet is significantly beneficial for preventing cognitive decline in old age [52]. There is evidence that certain nutrients and ingredients, including B vitamins (particularly folate), flavonoids, vitamin D, and omega – 3 fatty acids, appear to improve cognitive function. Dementia prevention involves more than just individual food groups but combining them in different diets as well [53]. In current times, the Mediterranean diet is one of the healthiest dietary patterns. It is enriched by minimally processed plant products and fish [50]. According to meta-analyses, the Mediterranean diet has been associated with better cognition and episodic memory and a lower risk of cognitive impairment and neurodegenerative diseases [51]. A 20-year cohort study in Spain proved that the Mediterranean diet can reduce dementia risk by 20% [54]. The diet is also effective in preventing atrial fibrillation. This was confirmed by PREDIMED study, which included 7,447 men and women belonging to a high-risk group of cardiovascular diseases. The positive influence of this nutritional model on the treatment of AF and risk factors such as obesity, diabetes and arterial hypertension has been observed. A study has shown that following the Mediterranean diet reduces the risk of cardiovascular diseases by 30% [55].

Physical activity

Physical activity plays an important role in keeping better heart health and cognitive abilities [56]. In order to improve the condition of the cardiovascular system, the minimum guidelines for aerobic physical activity are 150 minutes on average or 75 minutes of intensive training per week. The US Department of Health and Human Services recommends 300 minutes of moderate-intensity exercise per week to maintain or reduce body weight ($\geq 5\%$) [57]. Active physical activity helps prevent dyslipidaemia, improves endothelial function, reduces arterial blood pressure, and systemic inflammation [7]. Results from the Tromsø study showed that individuals who regularly engage in moderate exercise have a 28% reduction in the risk of developing atrial fibrillation [58]. Several epidemiological and observational studies have found a statistically significant link between chronic high-volume, high-intensity aerobic exercise training and an increased risk of developing AF. According to one study, the risk of AF in endurance athletes was 2 to 10-fold higher than in matched controls [59]. The literature also mentions that in dementia patients, physical activity improves memory, independence, cognitive and executive functions, and psychological health [60].

The treatment of Arterial Hypertention

Intensive treatment of arterial hypertension, especially with the use of renin-angiotensin system blockers, can prevent

AF and reduce the number of thromboembolic complications. According to an American Heart Association recommendation, antihypertensive medication is advised for patients who are 65 years old and older and their systolic blood pressure is more than 130 mmHg [61]. It is important to mention that antihypertensive treatment also affects the risk of developing cognitive decline. A Swedish research of 6,580 men and 5,516 women with atrial fibrillation found that antihypertensive medications, such as thiazides/RAAS blocker combos and warfarin, were linked to a decreased risk of dementia [62].

Sleep quality

Sleep quality is quite significant for cognitive skills in the elderly. It is advised to avoid daytime naps, keep an average ambient temperature in the bedroom, choose the appropriate lighting and minimise noise in the room in order to achieve a better night's sleep. It is also recommended to maintain a regular eating schedule. In addition, alcohol, nicotine and caffeine consumption should be reduced [63]. It is essential to discuss the treatment options for OSA in order to prevent cognitive function impairment and AF. Nasal continuous positive airway pressure (CPAP) is the primary treatment for OSA. When it is used properly and on a regular basis, CPAP reduces sleepiness symptoms and enhances life quality. Studies have shown that there is 44% lower chance of paroxysmal AF progressing in to permanent arrhythmias when using CPAP. Surgical treatment is also possible. Uvulopalatopharyngoplasty (UPPP), which involves the removal of tonsils, uvula, and posterior velum, is one of the most popular OSA surgical procedures [34].

Emotional health

In a person's daily activities, emotional health is extremely crucial. To maintain a positive psychological state, it is necessary to learn to accept yourself, develop your personality and autonomy, set goals and care for the well-being of the living environment [64]. Positive thoughts and feelings (e.g., happiness, optimism) have been linked to better circulatory system function and a lower risk of cardiovascular disease [65]. According to a meta-analysis of 10 prospective studies, having a significantly larger sense of purpose in life is linked with a 17% lower risk of developing cardiovascular disease. Furthermore, optimistic and ambitious adults are more likely to be physically active and less likely to smoke or misuse alcohol or drugs, which benefits their health [66]. The importance of a mental condition in brain activity has also been proven. The study, carried out by scientists from the US and France, discovered that the desire to fulfil future plans decreases the chance of developing dementia by up to 30%, despite previous distress, emotional disorders or other risk factors [67]. Meditation is another effective method for preventing cognitive decline and cardiovascular disease. Scientific literature indicates that there is less decomposition of grey matter in the brain and faster glucose metabolism amongst many meditators. It helps in the maintenance of brain function and the preservation of cognitive skills in old age [68]. This relaxation method is also thought to stimulate the heart's parasympathetic nervous system and can be used to treat atrial fibrillation, but much more research is required to confirm this [69].

Anticoagulation

Anticoagulants may be able to lower the incidence of cognitive decline in patients with AF [70]. According to one study, the patients who used oral anticoagulants had a 20% lower risk of dementia than those who did not receive the treatment. The study's findings are in line with the hypothesis that oral anticoagulant use could reduce the risk of silent brain infarcts and micro-embolism, which may be the cause of AF-related dementia [71]. However, studies with long follow-ups and comparisons of different preparations are still needed to confirm the cognitive benefits of oral anticoagulants [72].

POTENTIAL FUTURE RESEARCH

These data represent a call to action to recenter our efforts around modifiable risk factors modification to improve our cardiovascular system to provide and save our cognitive functions in old age. It could be considered the development of multidisciplinary programs in which patients would be counselled about modifiable risk factors for AF and the relation between cardiovascular diseases and our cognitive skills. Nevertheless, it is very important to conduct more longitudinal prospective studies that investigate the underlying mechanisms connecting AF and cognitive decline. Future research is needed to establish the effects and generalisability of systematic lifestyle and risk factor modification for AF and cognitive decline and to determine the appropriate targets for such therapies.

STRENGTHS AND LIMITATIONS OF STUDY

The main strength of this research was the large number of articles about various risk factors of atrial fibrillation and cognitive decline individually. There was a lot of information about the influence of obesity, diabetes mellitus, arterial hypertension, thyroid dysfunction, obstructive sleep apnoea, alcohol use and stress, including pathological mechanisms and statistical data on the development of AF and dementia. Also, the literature data on recommendations for prevention methods was considerable and specific. However, we did not find enough longitudinal cohort studies about the relation and underlying mechanism between the modifiable risk factors for both AF and cognitive decline. Neither did we have clinical trials that confirm preventive therapies connecting both these diseases.

CONCLUSION

Cognitive decline has a very close relation to atrial fibrillation. This type of arrhythmia is not the only one of the main reasons for the development of dementia, but these diseases also have the same risk factors individually. Patients with AH, diabetes mellitus, OSA, overweight people, and heavy alcohol drinkers are most likely to develop heart rhythm disorders and cognitive decline in old age. To reduce the risk and progression of AF and dementia, it is recommended to promote a healthy diet and physical activity, avoid smoking and alcohol, control blood pressure and heart rhythm, and take care of your sleep quality and mental health.

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MENTAL HEALTH OF REFUGEES: A LITERATURE REVIEW

Karo pabėgėlių psichikos sveikata: literatūros apžvalga

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SUMMARY

Introduction. Globally, the number of refugees is increasing every year. Refugees face with traumatic experiences in their home country, throughout the journey to integration into the new society. These experiences can cause mental health conditions such as anxiety, depression and post-traumatic stress disorder (PTSD). In this narrative review, we will review challenges of integration into new society, the effects of traumatic refugees experiences on their mental health with the main focus on PTSD, its prevention, treatment guidelines and novel approaches.

Aim. To review the most relevant studies based on the traumatic refugees experiences, challenges of integration into new society, refugees mental health problems, focusing on PTSD, its prevention, treatment guidelines and novel approaches.

Methods. Literature search was performed using search criteria including keywords and their combinations in the international medical PubMed database, World Health Organisation (WHO) database and The UN Refugee Agency (UNHCR) website.

Results. The number of refugees are rising every year globally and with recent events some European countries have to welcome more refugees than ever before. Traumatic experiences due to situation in home country, journey to safe land and during integration can cause various mental health conditions such as anxiety, depression and PTSD. The main struggles refugees face with during integration is due to language barriers, loss of family and friends, difficult access to medical care, non hostile environment, lack of labour possibilities and loneliness. It is suggested that more positive attitude and behaviour towards refugees would be promoted more as it benefits their mental health outcomes and is cost-efficient. PTSD is a complex mental health illness than can affect persons current and later life. Most of the guidelines suggest that the best treatment is cognitive behavioral therapy (CBT) along with selective serotonin reuptake inhibitors (SSRIs) or other antidepressants. Thus, a few novel approaches have made a breakthrough, for example, psychedelic-assisted therapy, but more research and studies should be made.

Keywords: refugees, integration, mental health, PTSD, treatment, psychotherapy

SANTRAUKA

Įvadas. Karo pabėgėlių skaičius didėja kasmet pasaulyje. Pabėgėliai susiduria su traumuojančiomis patirtimis savo gimtinėje, visos kelionės link saugios aplinkos bei integracijos į naują visuomenę metu. Šios patirtys gali sąlygoti įvairius psichikos sveikatos sutrikimus, tokius kaip: nerimas, depresija, potrauminio streso sindromas (PTSD). Šioje literatūros apžvalgoje apžvelgsime pabėgėlių integracijos į naują visuomenę problemas ir sunkumus, traumuojančių patirčių įtaką psichikos sveikatai, didžiausią dėmesį skiriant PTSD, jo prevencijai, gydymo gairėms ir naujausias gydymo galimybes.

Tikslas. Apžvelgti aktualiausius tyrimus apie traumuojančias pabėgėlių patirtis, problemas ir sunkumus integruojantis į naują visuomenę, pabėgėlių psichikos sveikatą, labiausiai atkreipiant dėmesį į PTSD ir jo prevenciją, gydymo gaires ir naujausias gydymo galimybes.

Metodai. Literatūra atrinkta ieškant naujausių mokslinių publikacijų naudojant raktinius žodžius *refugees, integration, mental health, PTSD, treatment, psychotherapy* ir jų kombinacijas tarptautinėje medicinos duomenų bazėje PubMed, Pasaulio Sveikatos Organizacijos bei Jungtinių Tautų Pabėgėlių Agentūros tinklapiuose. Paieškos kriterijai – straipsniai anglų kalba, pilni straipsniai su nemokama laisva prieiga ir nesenėsi nei penkerių metų (straipsniai 2017–2022 m).

Rezultatai. Karo pabėgėlių skaičius pasaulyje auga kasmet, o dėl naujausių įvykių Europoje vis daugiau Europos šalių priima daugiau pabėgėlių nei bet kada anksčiau. Traumuojančios neigiamos patirtys gimtinėje, kelionės į saugią šalį ir integracijos į naują visuomenę metu gali sąlygoti įvairius psichikos sveikatos sutrikimus, tokius kaip: nerimas, depresija, PTSD. Pagrindinės problemos ir sunkumai integracijos metu pabėgėliams iškyla dėl kalbos barjero, šeimos ir draugų netekties, apsunkintos prieigos prie sveikatos priežiūros, neigiamo visuomenės požiūrio į pabėgėlius, darbo ir karjeros galimybių trūkumo bei vienvietės. Šaltiniai teigia, jog turėtų būti skatinamas pozityvus visuomenės požiūris į pabėgėlius dėl teigiamo efekto jų psichikos sveikatai ir dėl ekonominių priežasčių: prevencinės priemonės valstybei kainuotų mažiau nei tolimesnis fizinės ir psichikos sveikatos sutrikimų gydymas. Dažniausiai pasitaikantis psichikos sutrikimas pabėgėlių tarpe – PTSD, tai – sudėtingas psichikos sveikatos sutrikimas, sutrikdantis žmogaus funkcijas ir tolimesnį gyvenimą. Bene visos esamos PTSD gydymo gairės teigia, kad efektyviausias PTSD gydymas yra kognityvinė elgesio terapija (KET) kartu su selektyviais serotonininio reabsorbcijos inhibitoriais (SSRI) ar kitais antidepresantais. Nors naujausios gydymo galimybės, pavyzdžiui, psichoterapija kartu su psichodelikais, yra vis daugiau tiriamos ir apibūdinamos kaip itin efektyvios, reikėtų daugiau duomenų ir studijų apie ilgalaikes šio gydymo perspektyvas ir išeitis, nepageidaujamus poveikius.

Raktiniai žodžiai: pabėgėliai, integracija, psichikos sveikata, PTSD, gydymas, psichoterapija.

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INTRODUCTION

According to The UN Refugee Agency refugees are people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country [1]. Every year the number of refugees across the world is growing and today there are more than 32 million counted [2]. As European Commission states, since Russia's military aggression in Ukraine in February 2022, Europe has received the largest number of people fleeing war since World War II [3]. As of November of 2022 there are almost 8 million Ukrainian refugees recorded in Europe. The variation of refugee quantity in European countries goes from few hundreds in Liechtenstein to over a million in Germany [4]. In Lithuania as of November 2022 there are almost 70 thousand Ukrainian refugees recorded. The majority of Ukrainian refugees are at the age from 18 to 64 years old [5]. World Health Organization claims that refugees are a very vulnerable social group and often face xenophobia (prejudice against people from other countries), discrimination, poor living, and working conditions. Despite the fact that refugees suffer from various physical and mental health problems, the access to adequate health care is still a challenge [6]. The process of urgent moving from home country frequently exacerbate already existing diseases such as cardiovascular disease, hypertension, diabetes, asthma and cancer. Other negative aspect is that refugees tend to overlook their health problems due to challenges of moving and settling. This traumatic experience, violence and brutality of the officers has a huge impact on mental health: refugees often suffer from post-traumatic stress disorder (PTSD), depression, anxiety, sleep disturbance, substance misuse and somatisation [7]. Not only the violence and tragedies at home country can cause traumatic experiences, but the journey to safe land can also be very challenging. And even after all that, while seeking medical help refugees may face difficulties because of the physicians lack of awareness, language and intercultural communication problems [8].

In this non-systematic literature review, we focused on refugees struggles of integration into new society, reviewed the most prominent mental health conditions with the main focus to PTSD, its possible origin, treatment guidelines and novel approaches.

METHODS

This non-systematic literature review was performed according to a scale for the quality assessment of narrative review articles (SANRA). Literature for this review was gathered using search criteria including keywords refugees, integration, mental health, PTSD, treatment, psychotherapy and their combinations in the international medical PubMed database, World Health Organisation (WHO) database and The UN Refugee Agency (UNHCR) website. Search criteria for literature were articles in English language, full articles with free access and not older than five years (articles from 2017 to 2022 were included). This study was conducted to learn more about refugees challenges of integration into new society, refugees mental health and especially PTSD, PTSD

prevention, treatment guidelines and novel approaches. This review included a total of 40 articles and provides a selected overview of scientific publications on refugees mental health.

RESULTS

Mental health of refugees

Refugees and other types of migrants may face mental health problems while experiencing traumatic events in home country, escaping the country, in refugee camps and while acclimating to new surroundings. These mental health disorders may vary from acute behavioral problems to chronic depression, anxiety and PTSD [9]. Different authors suggest different statistics about the number of refugees suffering from mental disorders. Depression rates varies from 5% to 32% among adults and up to 62% among URM [16,17]. Anxiety rates among adults varies from 4% to 40% [18] and among unaccompanied refugee minors (URM) – about 14 % [14].

Refugees have a higher prevalence of depression and are ten times more likely to experience PTSD than the general population. A recent systematic review of more than 8000 Syrian refugees resettled in 10 countries reported that PTSD is the most common mental disorder among refugees with a prevalence of 43% [17]. Other authors suggest that these numbers can be even higher - from 47% to 87% among adults and youth [13-15] and from 4,6% to 43% among URM [14]. Furthermore, refugees that have been submitted to torture and/or rape have the highest rates of PTSD [11]. New research conducted by Amnesty International shows that women and girl refugees face violence, assault, exploitation and sexual harassment at every stage of their journey [12].

PTSD is a syndrome that results from exposure to real or threatened death, serious injury, or sexual assault [10] and is characterized by the presence of multiple symptoms that can be grouped into four clusters: (1) intrusive symptoms (for example, nightmares), (2) persistent avoidance of stimuli associated with the trauma, (3) negative alterations in cognition and mood associated with the traumatic event (for example, difficulty concentrating, guilt, etc.), and (4) alterations in arousal and reactivation associated with the traumatic event (for example, difficulty sleeping) [11]. Moreover, high incidences of PTSD are not only linked to multiple traumatic events, being a victim of violence (e.g., torture, rape/sexual assault, armed conflicts), and economic hardship, but also factors involving post-migration difficulties, such as poor social network (loneliness and boredom, weak social integration), poor access to counseling services, socioeconomic/political instability (not having legal immigrant status, unemployment), detention, communication difficulties [13,20]. Refugees may also deal with other post-migration difficulties such as family issues associated with separation, acculturation or generational conflict [19]. Furthermore, an acute mental health crises were positively associated with the length of stay in the refugees camp. The odds ratio of a mental health crisis increases for every 10% increase in days of residence in the camp. This is notable when considering the average length of stay in the camp is 71 days [20]. The longterm outcomes associated with PTSD can be mood disorders, anxiety and panic disorders, neurological disorders including dementia, substance abuse

disorder. PTSD is also linked with increased mortality with suicidal ideations and attempts [10]. For children long-term effects from these mental illnesses indicated scholastic issues, but no further worsening of symptoms [21].

Therefore, refugees suffer from various mental health problems from acute behavioural problems to acute mental illnesses. Refugees are more likely to develop PTSD, depression and anxiety than the general population and can origin from traumatic experience in the home country and through the whole journey to safe land and social integration. Developed mental disorders can seriously affect childrens and adults later life.

Integration

As mentioned before in this article, refugees face challenges and negative experiences even after coming to safe country and while settling in. Social integration experience affects refugees mental health and vice versa. A study in Germany about Eritrean refugees points that refugees experience psychological distress because of the language barrier, discrimination, unemployment, insecure residence status, loss of family and friends, conflict within the diaspora community, and isolation. This study suggests that resident community should partake in refugees wellbeing by being socially resilient – welcoming refugees to local communities, giving them access to social services, educational opportunities and medical help. [22]. Studies from other countries also suggest the same key points in why refugees integration can be challenging for them [19,23-25]. Furthermore, a study in Slovenia showed that almost 40% of surveyed slovenians think that migrants bring communicable diseases into their environment and more than 44% answered that migrants should be entitled to only urgent care [26]. This shows us that migrants receive negative opinions and attitude towards them even regarding medical help topics. Rates of help-seeking for mental health problems are low amongst refugee communities, despite the high prevalence of PTSD reported amongst these individuals [27]. It is known that cost of the help for refugees grow when refugees are more in need, so authors suggest that positive attitude and behaviors towards refugees should be promoted more and other policies should be installed, for reference, in several countries like Austria, Germany, Norway, and Sweden integration courses have been made mandatory for refugees to improve their language skills and basic qualifications for successful labor market integration [28]. Moreover, media is also very important in forming refugees image in residents eyes – a study in United States of America suggests that media is depicting refugees as threatening to national security and it can significantly reduce support for resettlement [29].

To conclude, social integration of refugees is very challenging and plays a huge role in their mental health outcomes, so more positive attitude and behavior should be promoted, as preventing traumatic experiences is more costly efficient than later medical help.

Help and treatment

Even though health care workers and general population can not prevent political conflicts or war, there are other

ways to minimize the harm of these negative experiences to refugees. Convention and Protocol Relating to the Status of Refugees determines the rights and treatment of refugees. It covers basic measurements such as freedom of movement, identity, protection of the family, non-discriminatory treatment of refugees, rights to equal work, primary education opportunities [30]. With the right approach and appropriate help health care specialists can also make a positive impact on refugees integration, access to basic and specialized medical help and their mental health outcomes. American Family Physician recommends using action plans: firstly, refugees with acute or life-threatening mental health disorders should be referred for immediate psychiatric evaluation and treatment. Secondly, patients with less serious mental health conditions, can be followed by family physicians and referred to specialist as needed. Finally, not every refugee needs clinical mental health services [32].

The NICE Guidelines for the treatment of PTSD suggest identification, assessment, psychoeducation, active monitoring, and referral for further assessment as the first step in PTSD treatment [31]. Current approaches to PTSD prevention can be divided into psychological and pharmacological categories and into three subgroups: primary, secondary and tertiary prevention. Primary prevention would be taking preventative actions before the traumatic event, secondary prevention - between the traumatic event and the development of PTSD, tertiary prevention - after the first symptoms of PTSD become present. Secondary and tertiary prevention is focusing on psychotherapy and symptomatic treatment and treatment of PTSD and its variations [33].

There are a number of guidelines for treating PTSD, but in this article we are going to focus on the main points and novel outlooks. Starting with psychological treatment, most of the guidelines suggest that psychotherapy is a first-line approach. The most beneficial type of psychotherapy is considered to be cognitive behavioral therapy (CBT) [34]. The strongest evidence and most efficiencies are found in cognitive behavioural therapy with a trauma focus (CBT-TF), cognitive processing therapy (CPT), cognitive therapy (CT), eye movement desensitisation and reprocessing (EMDR), prolonged exposure (PE) and image rehearsal therapy (IRT), which have a focus on cognitive, behavioural and emotional processing techniques [33,34]. CBT-TF (PE, EMDR, and CPT) has been proved to reduce symptoms of PTSD with completion of 12–16, 60 minute weekly sessions [35]. Other psychological interventions could be hypnotherapy, hypnosis and brief eclectic psychotherapy [33].

Thus, psychotherapy helps many patients by reducing PTSD symptoms, 40–60% of patients do not respond adequately and the symptoms remain [36]. Pharmacological approach plays a huge role in PTSD treatment. The most common medicaments are antidepressants (SSRIs, SNRIs, MAO inhibitors), sympatholytic drugs (alpha-blockers), antipsychotics, anticonvulsants and benzodiazepines [33]. SSRIs (sertraline, paroxetine, fluoxetine) are usually a first choice drug and out of all of the SSRIs sertraline has the lowest number of side effects [34,37]. SSRIs are known to have a big beneficial effect on PTSD symptoms, including

reductions in avoidance behavior, hyperarousal, and intrusive re-experiencing of the event [38]. The WHO guideline also included tricyclic antidepressants (TCAs) as a first-line pharmacological treatment option [34]. PTSD often has a fluctuating course, where relapses and chronic courses are seen. Therefore, often there is a need for a long-term pharmacological treatment lasting more than 12 months [37]. Furthermore, about 30% of patients with PTSD never recover and this kind of PTSD is called “treatment resistant”. In this case, only a symptomatic treatment is possible [38]. For this reason, a lot of studies are focusing on novel and alternative possible treatments. One example could be psychedelic-assisted therapy. Currently, several psychedelics like 3,4-methylenedioxymethamphetamine (MDMA), ketamine, classical psychedelics (e.g., psilocybin and lysergic acid diethylamide (LSD)), some cannabinoids are being investigated for the treatment of PTSD [36]. Out of all mentioned psychedelics MDMA is considered to be the most efficient. Authors suggest that small doses of MDMA could be used along with CBT for the best results [36,39,40]. Within the past few years, 2 psychedelics have received breakthrough designations for psychiatric indications from the US Food and Drug Administration, and several psychedelics are currently being investigated for the treatment of PTSD [36]. This novel approach could be very promising in treatment of PTSD, but still needs more research which would review longterm effects, adverse events and if MDMA-assisted therapy would be significantly more effective than SSRIs with CBT. Furthermore, this treatment would require special training for medical specialists and other resources [40].

In conclusion, refugees could have better mental outcomes if preventative treatment would be accessed in time.

Treatment of PTSD is a complex long-term commitment that consists of psychotherapy and pharmacological treatment. The best combination is considered to be CBT along with SSRIs, but novel approach is breaking through – MDMA-assisted psychotherapy. Despite this complex and long treatment, PTSD and it's symptoms can still reoccur or PTSD can be treatment resistant, so it is important not to forget symptomatic treatment.

CONCLUSIONS

As the number of refugees are rising every day, the importance of understanding their needs and challenges is rising as well. Refugees face traumatic experience throughout their journey from running from political conflicts, wars and other disasters to coming to safe land and settling in. These traumatic experiences can cause various mental health conditions which can require long-term medical interventions and treatments, affect their later life and be very expensive. The most prominent integration struggles for refugees are language barriers, loss of family and friends, difficult access to medical care, non hostile environment, lack of labour possibilities and loneliness. In conclusion, refugees are few times more likely to develop PTSD and even after the standart long-term psychotherapeutic pharmacological treatment, about a third of cases remain treatment resilient. Therefore, prevention should be considered as early as possible and a positive attitude towards refugees should be more promoted. The most efficient treatment for PTSD is CBT along with SSRIs, but novel treatments such as MDMA-assisted therapy are very promising and suggest positive results, though should be studied more.

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HALOPERIDOL TO TREAT PSYCHOSIS – IS ST ELEVATION JUST AN UNFORTUNATE COINCIDENCE? CLINICAL CASE REPORT

Psichozės gydymas haloperidoliu – ar ST segmento pakilimas tik atsitiktinumas? Klinikio atvejo analizė

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SUMMARY

Haloperidol, one of the oldest antipsychotic medications, has well established side effects on cardiovascular system. This case study describes a 19-year-old male patient with acute psychosis and a history of substance use, who experienced ST elevation in his ECG, elevated serum CK biomarkers, and toxic haloperidol concentrations after receiving therapeutic doses of intramuscular haloperidol. After excluding other possible causes, it was determined that the medication was likely responsible for these changes. When intramuscular haloperidol was discontinued, the patient's CK concentration decreased, although the ECG changes persisted and his mental state rapidly deteriorated. It was decided that advantages of Haloperidol outweigh the risk and it was necessary to start treatment with haloperidol again. As psychomotor agitation resolved, haloperidol was resumed orally. After that, CK concentration started to decline and fell in a span of two days. Drug concentrations were tested and its concentration was higher than recommended, even after lowering Haloperidol dose. It should be noted that we can only conclude that haloperidol caused the ST elevation can after ruling out other possible cardiovascular causes, especially when the ECG changes are accompanied by an elevation in CK levels. Overall, this case highlights the importance of careful monitoring and management of patients who are receiving antipsychotic medications, especially those with known cardiovascular side effects.

Key words: psychosis, haloperidol, ST elevation

SANTRAUKA

Haloperidolis yra vienas seniausių antipsichotinių vaistų su žinomais šalutiniais poveikiais kar-diovaskulei sistemai. Šis klinikinis atvejis yra apie 19 metų pacientą gydytą dėl ūmios psichozės epizodo, kurį gydant terapinėmis intramuskulinėmis haloperidolio dozėmis išsivystė EKG ST segmento pakilimas, padidėjusi kreatinkinazės koncentracija bei toksinė haloperidolio koncentracija kraujyje. Iš paciento anamnezės buvo žinoma apie psichoaktyvių medžiagų vartojimą praeityje. Atmetus kitas galimas šių pokyčių priežastis buvo nuspręsta, kad ST segment pakilimas ir kreatinkinazės koncentracijos padidėjimas buvo nulemti haloperidolio skyrimo. Nutraukus intramuskulinio haloperidolio skyrimą paciento kreatinkinazės koncentracijos sumažėjo, EKG pokyčiai išliko, tačiau paciento būklė ženkliai suprastėjo. Buvo nuspręsta, kad haloperidolio privalumai nusveria trūkumus, todėl vaisto skyrimas buvo atnaujintas. Sumažėjus psichomotoriniam sujaudinimui haloperidolis pradėtas skirtis peroraliai, ko pasekoje kreatinkinazės koncentracija sumažėjo. Net ir sumažinus haloperidolio dozę, jo koncentracija kraujyje išliko aukštesnė nei rekomenduojama. Svarbu paminėti, kad spręsti apie haloperidolio įtaką EKG ST segmento pakilimui ir kreatinkinazės koncentracijos padidėjimui galima tik atmetus kitas galimas priežastis. Šis klinikinis atvejis pabrėžia savalaikių tyrimų ir aktyvios stebėjimo taktikos svarbą pacientams, gydomiems antipsichotiniais ar kitais vaistais, darančiais įtaką kar-diovaskulinės sistemos veiklai.

Raktiniai žodžiai: psichozė, haloperidolis, ST segmento pakilimas.

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INTRODUCTION

Haloperidol has been in the market for over 60 years, and has helped many patients battling mental disorders. It was one of the most preferred antipsychotics before the introduction of atypical antipsychotic medication. It is still used to this day for treating psychotic disorders, Tourette's syndrome, and other psychiatric conditions [1]. There is a great deal of information on the side effects of Haloperidol, with one of the most prominent ones being its effects on cardiovascular system – hypotension, hypertension, tachycardia, QT prolongation in ECG and Torsade's de Pointes [2]. Haloperidol increases QT interval by 4.7s on average [3]. A post-mortem analysis of deaths in schizophrenia concluded that the condition can lead to premature mortality, with cardiovascular issues being the most common causes of deaths [4]. Most studies on antipsychotic cardiotoxicity recommend clinical monitoring (biomarker detection, ECG monitoring). In this clinical case report, we describe encountering a patient that developed ST elevation, rise of CK biomarker and toxic haloperidol concentration after treating his psychosis with a therapeutic dose of the medication. This case is unique as it highlights the potential for psychiatric medications to cause adverse cardiac events, as well as the importance of considering alternative treatment options when adverse events occur. It also highlights the need for close monitoring of patients undergoing treatment for acute psychosis with psychomotor agitation.

CASE REPORT

A 19-year-old male patient was admitted to the Hospital of Lithuanian University of Health Sciences Kaunas Clinics Psychiatry Department with a three-day history

of paranoia, agitation and mood swings. Clinical picture included paranoid delusions, ideas about auto castration and cannibalism, gustatory hallucinations (of blood and cocaine), stereotypical movements, silly affect, impaired cognition, signs of mannerism, following psychomotor agitation which required physical restraint. Patient had no prior history of mental illness but did have a history of substance use (3,4-Methylenedioxymethamphetamine, lysergic acid diethylamide, alcohol, cocaine). Baseline electrocardiogram (ECG) and computed tomography of the brain showed no abnormalities, the urine rapid drug test was positive for tetrahydrocannabinol and benzodiazepines which had been used in the emergency room to treat agitation. Therefore the treatment plan consisted of Haloperidol 15 mg daily dose, and Diazepam 30 mg daily dose, both administered intramuscularly. A follow up ECG was performed 2 days after initial treatment, showed signs of myocardial ischemia (ST elevation in II, III, aVF, V2 and V3 derivations) (Figure 1), although the patient did not indicate any typical symptoms (chest discomfort, shortness of breath, neck, jaw or shoulder pain, tachycardia, sweating or nausea). Blood electrolyte concentration (K 4.22 mmol/l, Na 141 mmol/l and troponin I (TnI) was in normal range, but creatine kinase (CK) was elevated (2639.00 IU/l, normal range: 10-171 IU/l). While verbal contact with the patient was incomprehensible due to acute psychosis and psychomotor agitation and the knowledge of higher pain threshold when agitated [5], the decision was made to arrange consultations with a cardiologist, clinical toxicologist and clinical pharmacologist. It was concluded that ECG changes were more likely due to repolarization abnormality than acute MI (normal TnI concentration, ECG

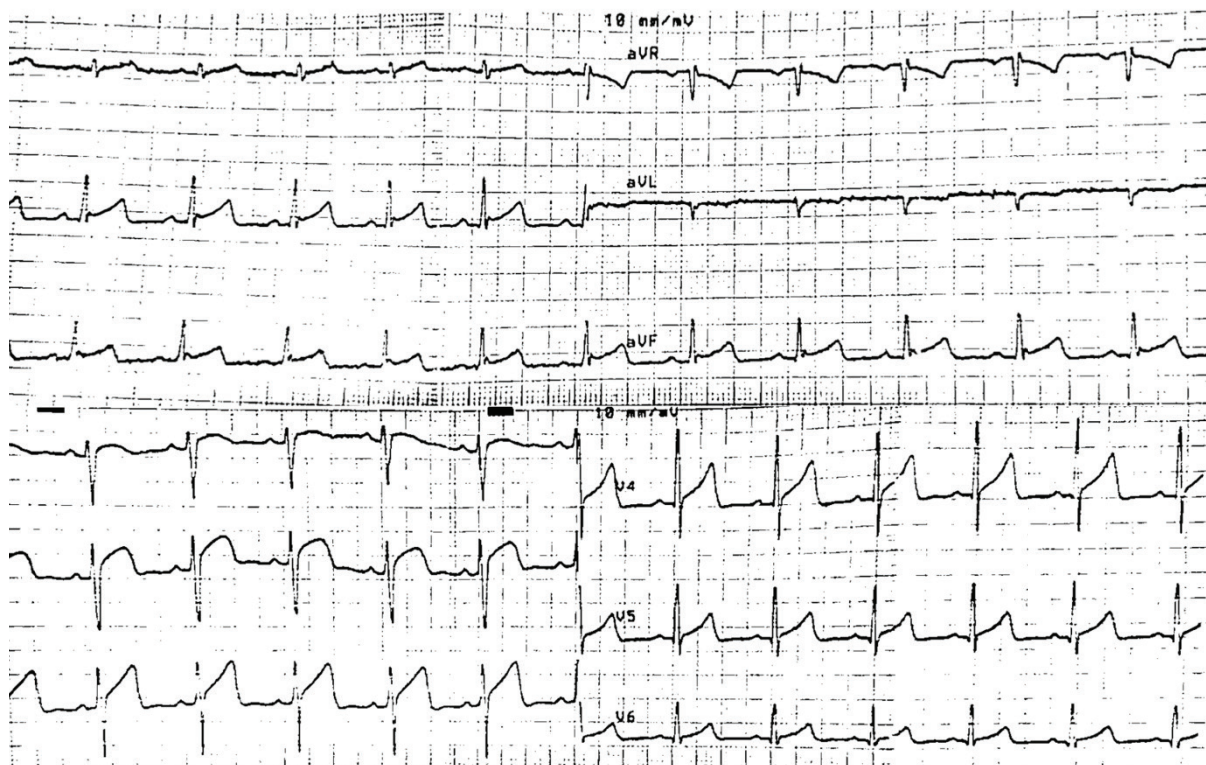


Figure 1. ECG performed 2 days after the initial treatment

Case report

showed changes in multiple heart walls, concave ST segment elevation and no reciprocal changes). Possible causes of ECG changes and CK elevation were suggested: haloperidol administration, psychomotor agitation, physical restraint and pericarditis. Further study plan consisted of CK and ECG monitoring, testing haloperidol blood concentration. ECG changes remained relatively similar, although the patient started showing signs of sinus tachycardia (Metoprolol was prescribed), haloperidol's concentration was more than 2.5 times higher than recommended (26.31 mcg/l, normal range 1-10 mcg/l) and the CK rose to 3643 IU/l. The patient remained psychotic and agitated, requiring physical restraint. Therefore the decision was made to change intramuscular haloperidol to oral olanzapine, due to its established effect for psychosis with psychomotor agitation and lower risk for acute cardiovascular adverse events [6].

When intramuscular haloperidol was discontinued, CK concentration fell (to 195 IU/l), ECG changes remained relatively similar (figure 2), although the patient's mental state started to rapidly decline exhibiting signs of thought broadcasting, associative automatism, mixed delusions (grandiose, persecutory, retrospective); signs of psychosis were polymorphic and for the first time since the start of treatment the patient expressed suicidal ideation. It was decided that maximum daily dose of Olanzapine prescribed was ineffective and the potential advantages of Haloperidol outweigh the risk, so haloperidol treatment should be started again. The patient's treatment plan consisted of oral Olanzapine (20 mg daily dose), intramuscular haloperidol (10 mg daily dose), oral Diazepam (25 mg daily dose), Trihexyphenidyl hydrochloride (2 mg) and Metoprolol (11.875 mg). With the renewal of intramuscular Haloperidol, due to acute psychomotor agitation, CK concentration rose (to 949 IU/l). Mood stabilizer was added to the treatment plan (Sodium valproate, 900 mg daily dose) to augment the effect of antipsychotics. As psychomotor agitation resolved, haloperidol was changed to oral administration. CK concentration subsequently started to decline and fell to 284 IU/l in a span of two days. Drug concentrations were tested and even after lowering Haloperidol dose, its concentration was higher than recommended (24.33 mcg/l), while Olanzapine,

Diazepam and Valproate concentrations were within the recommended range. Haloperidol dose was lowered to 5 mg per day. ECG changes remained relatively the same. Patient was monitored for rhabdomyolysis and malignant neuroleptic syndrome during treatment but did not exhibit any signs of either. He was consulted by a neurologist to rule out organic causes for psychosis – magnetic resonance imaging (MRI) scan of the brain showed no pathological changes, thyroid function was normal, patient was negative for HIV, antibodies for *T. pallidum*, tick-borne encephalitis, but IgM against *Borrelia burgdorferi* was slightly elevated. The infectious disease consultant recommended performing additional tests (lumbar puncture, EEG etc.) but the patient refused. Since he was not a permanent resident of Lithuania, the patient and his family requested a transfer to his home country and continued his treatment in a psychiatric facility there. His mental state was stable enough for the transfer, so he was discharged after 35 days of treatment.

DISCUSSION

This case is about a patient with an acute psychotic episode and a history of substance abuse, who developed an ST segment elevation and high blood creatine kinase concentration after intramuscular haloperidol injections. The diagnosis of biomarker and ECG changes was differentiated between acute MI, pericarditis, psychoactive substance use (amphetamine) and neuroleptic malignant syndrome. It has been noted that the use of antipsychotic medication nearly doubles (1,88) the risk of MI [7]. Acute myocardial ischemia is the most frequent cause of ECG ST elevation, although in the present case the patient did not experience any clinical symptoms associated with acute myocardial ischemia, electrolyte concentration and TnI were tested normal. The diagnosis of pericarditis was also excluded. Another possible explanation for ST elevation and the increase of creatine kinase could be the use of illegal drugs such as cocaine and amphetamines, as the patient had a history of substance abuse [8]; however this hypothesis was denied since it would not explain why the patient's ECG in the emergency department showed no pathological changes and only occurred after starting treatment with psychotropic drugs

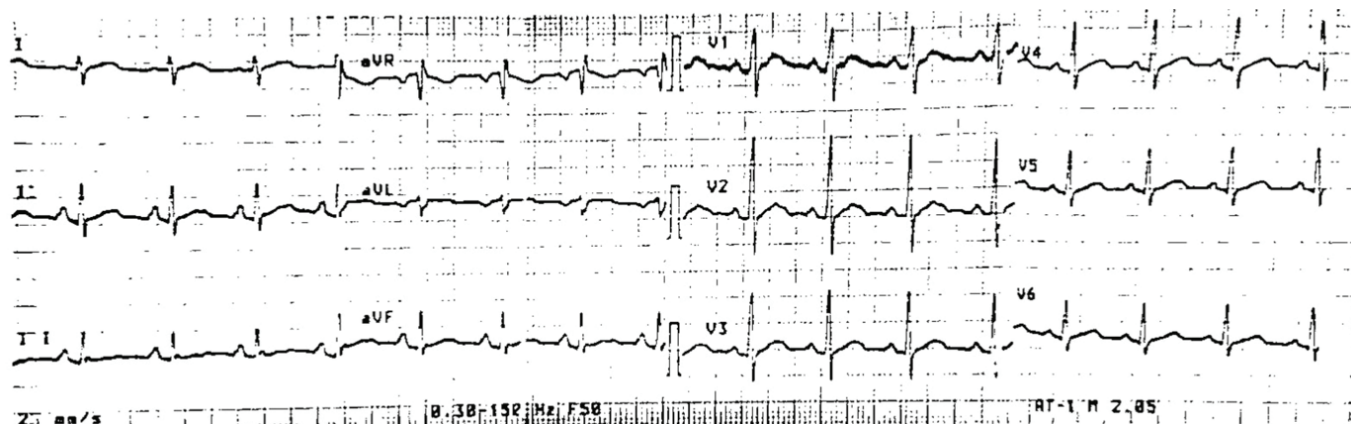


Figure 1. ECG after discontinuing intramuscular haloperidol

and also could not explain why the changes remained when the patient was not using psychoactive substances. Clinical toxicologist claimed that the increase of creatine kinase was likely due to intramuscular haloperidol injections. Creatine kinase is an enzyme usually found in cardiac and skeletal muscles. High levels of creatine kinase in blood are considered to be a marker for muscle injury. It is acknowledged that antipsychotics can cause neuromuscular effects, especially Haloperidol [9]. Results of a prospective study suggested that high exposure to haloperidol significantly increases creatine kinases' activity, which can be considered as a dose-dependent relationship [9]. The levels of creatine kinase could also have increased as a consequence of psychomotoric agitation as well as patients' physical restraint using fixation, which was considered necessary due to possibly dangerous agitation [10]. Another possible interpretation for the elevation of creatine kinases' activity is neuroleptic malignant syndrome caused by haloperidol; however the patient did not meet all the diagnostic criteria for this diagnosis as he did not experience severe muscle rigidity and elevated body temperature [11]. In our case study, it was found that the patient had higher than normal concentration of Haloperidol in his blood. Haloperidol as most neuroleptics have an enormous variation of the dose to blood concentration [12]. The clinical approach of prescribing neuroleptics is based on trial and error. Although a standard

practice, it is rather primitive and not a very precise one. In the study by Darby et al. it was found that patients with higher blood level of Haloperidol experienced Neuroleptic Induced Deficit Syndrome (NIDS) [13]. While the patient in our study did not experience any of the symptoms of NIDS, there should be a consideration of a serial check of neuroleptics blood levels. There were close to none of the symptomatic adverse effects of Haloperidol in our patient's case yet the patient experienced tachycardia. A systematic review and meta-analysis by Maximillian Huhn et al. found that 77 studies with 16,907 participants provided data on tachycardia or bradycardia events while being exposed to neuroleptics [14]. The risk of tachycardia events was higher compared to placebo [14]. In our case report, the patient was examined for all the possible causes of tachycardia, myocardial infarction, pericarditis, and there were none found. It is possible that tachycardia was caused by Haloperidol and its blood levels.

Haloperidol has well-established cardiovascular side effects that need to be taken into consideration when prescribed. The conclusion that haloperidol may have caused ST elevation can only be made when other possible cardiovascular causes are ruled out, especially when the changes in ECG occur with CK elevation.

Patient consent for the case report was obtained.

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Kompulsyvaus interneto naudojimo skalė - lietuviška versija vaikams (*angl.* Compulsive Internet Use Scale, CIUS)

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Sparčiai didėja galimybės jungtis internete bet kur ir bet kada, be to, veiklos internete tampa vis patrauklesnės ir įtraukesnės bet kokio amžiaus asmenims. Internetu leidžiamo laiko trukmė pastaruosius keliolika metų nuosekliai auga ir daliai žmonių, ypač vaikams ir jaunuoliams, naudojimasis internetu tampa sunkiai kontroliuojamas arba probleminis [1]. Probleminis interneto naudojimas (PIN) apibrėžiamas kaip itin stiprus, neproporcingai (lyginant su kitomis veiklomis) didelis įsitraukimas į veiklas internete (tokias kaip žaidimai, azartiniai lošimai, socialinės medijos naudojimas, srautinis internetinio turinio žiūrėjimas, apsipirkimas internetu ir pan.), sunkiai kontroliuojamas net tuomet, kai tampa akivaizdžios tokio įsitraukimo pasekmės kasdinei veiklai ir sveikatai [1–3].

Pradinio mokyklinio amžiaus vaikai dalį dienos praleidžia neprižiūrimi tėvų arba globėjų, be to, turi nuosavus išmaniuosius įrenginius su galimybe jungtis internetu [4–6]. Rados požiūriu jie pasižymi mažu brandumu ir savireguliacija, taigi šio amžiaus vaikams itin didėja ir PIN rizika. Tiriant pradinio mokyklinio amžiaus vaikų ir paauglių probleminių interneto naudojimą nuolat randama, kad vaikų PIN siejasi su bendru ekranų laiku, tai yra naudojimosi įvairiais ekranais turinčiais išmaniaisiais prietaisais trukme [5,7–9]. Kadangi 6–10 metų amžiaus vaikai gali teikti patikimą informaciją apie savo elgesį ar vidines būsenas [1], pačių vaikų teikiama informacija apie save, savo įsitraukimą naudojantis internetu, gali būti labai vertinga vaikų PIN rizikai vertinti.

Bendrai atpažinti PIN nėra lengva mažiausiai dėl dviejų priežasčių: 1) nėra sutarta dėl diagnostinių kriterijų; 2) nėra standartizuotų ir patikimų instrumentų [2,10]. Be to, PIN pasekmės – ypač kurį laiką – nėra tokios akivaizdžios ir vienareikšmės, kaip kitų priklausomybių atveju. Lietuvoje, kaip ir daugelyje kitų šalių, kol kas nėra standartizuotų instrumentų (matavimo skalių) turinčių vienareikšmius atskaitos taškus, kurie leistų patikimai ir pagrįstai atrinkti asmenis su PIN arba PIN rizika. Praktikoje tenka vadovautis bendrais kriterijais, leidžiančiais atpažinti esminius PIN bruožus. Panašiais kriterijais remiasi ir moksliniuose tyrimuose sėkmingai naudojamos skalės, pvz., Kompulsyvaus interneto naudojimo skalė [11] arba Devynių teiginių probleminio interneto naudojimo klausimynas [3,12], tačiau jos dar nėra galutinai pritaikytos individualiam klinikiniam vertinimui.

Kompulsyvaus interneto naudojimo skalė (*angl.* Compulsive Internet Use Scale, Meerkert et al., 2009; sutr. CIUS) yra viena plačiausiai taikomų skalių PIN rizikai vertinti mokslinių tyrimų tikslais. Šis 14 teiginių klausimynas (CIUS-14) autorių buvo sudarytas ir naudotas tiriant jaunų suaugusių žmonių bei paauglių imtis. Trumposios skalės versijos (CIUS-5, CIUS-7, CIUS-9 ar CIUS-10) yra patvirtintos kaip patikimos ir validžios suaugusiųjų bei jaunuolių PIN vertinimui įvairiose

šalyse [1,13,14], taip pat ir Lietuvoje [15].

Nors iki šiol atlikti lietuviškos CIUS vaikų versijos psichometriniai tyrimai parodė, kad 14 teiginių skalės vidinis suderinamumas yra labai geras (Cronbach alpha reikšmė 0,87), be to, patvirtinančioji faktorinė analizė parodė gerą atitikimą CIUS autorių siūlomam vieno faktoriaus modeliui [5], toliau analizuojant CIUS taikymo vertinant pradinio mokyklinio amžiaus vaikų kompulsyvų naudojimąsi internetu pagrįstumą bei patikimumą trijose kultūrose (Latvijoje, Lietuvoje ir Taivane) ir atlikus išsamią psichometrinių charakteristikų analizę, buvo pasiūlyta 10-ties teiginių CIUS Vaikų versija [1]. Ši trumpoji versija atitinka ir kitų autorių siūlomus trumpųjų versijų variantus, be to, CIUS-10 versija apima visus penkis originalios skalės autorių siūlomus komponentus, atspindinčius kompulsyvų interneto naudojimą: 1) kontrolės praradimą; 2) nuolatinį susirūpinimą ir siekį kuo greičiau prisijungti; 3) nerimavimą ar užsisklendimą, kol nepriėjus prie interneto; 4) interneto naudojimą įtampos įveikai ar nusiraminimui; 5) konfliktus su kitais arba vidinius konfliktus [5,11]. Kiekvienam klausimyno teiginiui pasirinkus labiausiai tinkantį vieną iš 5 atsakymo variantų (žr. pateikiamą skalę), reikšmėms vėliau suteikiami balai: niekada – 1; labai retai – 2; kartais – 3; dažnai – 4; labai dažnai – 5. Bendras skalės įvertis gali varijuoti nuo 10 iki 50 balų, o didesnis įvertis rodo interneto naudojimo kompulsyvumą arba PIN riziką. Analizuojant tikrai Vilniaus miesto antrų-ketvirtų klasių mokinių (8–10 metų) vaikų duomenis, maždaug 8–10 proc. vaikų surenka 35 ir daugiau balų, kas – labai preliminariais rezultatais – gali būti laikoma PIN rizikos atskaitos tašku. Reikalingi tolesni moksliniai tyrimai siekiant nustatyti Lietuvai tinkamus ir kliniškai pagrįstus PIN rizikos atskaitos taškus vertinant CIUS-10 vaikų versija.

Bendrai vertinant vaikų probleminių interneto naudojimą – tiksliau, kiek jų naudojimasis internetu gali būti rizikingas, – svarbu nepasikliauti vien CIUS-10 įverčiu, o būtinai atkreipti dėmesį ir į kitus kriterijus: 1) vidutinę naudojimosi internetu trukmę (pradinio mokyklinio amžiaus vaikams rekomenduojama trukmė yra ne daugiau kaip 2 val. per dieną); 2) veiklas internete ir naudojimosi internetu įpročius (riziką įprastai didina vaizdo žaidimai, vaizdo įrašų peržiūra socialinėse medijose, pagal amžių neleistino turinio paieška ir peržiūra, be to, naudojimasis internetu nakties metu ar valgant); 3) vaiko individualias savybes (didesnį emocingumą, reaktyvumą), o taip pat į turimus ar numanomus emocijų ir / arba elgesio sutrikimus; 4) vaiko dalyvavimą kitose veiklose, ypač fizinį aktyvumą ir pomėgius (šiems turėtų būti skiriama bent valanda kasdien); 5) santykius su tėvais ir bendraamžiais (emocinių ir socialinių ryšių trūkumas ar santykių nesklandumai didina PIN riziką).

Toliau yra klausimai apie Tavo naudojimąsi internetu ar buvimą prisijungus prie interneto. Ties kiekvienu klausimu pažymėk, kaip dažnai vienas ar kitas įvardintas elgesys pasitaiko arba tinka Tau ar Tavo elgesiui apibūdinti.

Teiginys elgesiui apibūdinti	Niekada	Labai retai	Kartais	Dažnai	Labai dažnai
1. Kaip dažnai Tau būna sunku sustoti naudotis internetu?	1	2	3	4	5
2. Kaip dažnai Tu vis tiek naudojiesi internetu, nors ir norėtum nebesinaudoti?	1	2	3	4	5
3. Kaip dažnai Tau trūksta miego dėl naudojimosi internetu?	1	2	3	4	5
4. Kaip dažnai Tu galvoji apie internetą net tuomet, kai neturi galimybės prisijungti prie interneto?	1	2	3	4	5
5. Kaip dažnai negali sulaukti, kol vėl galėsi prisijungti prie interneto?	1	2	3	4	5
6. Kaip dažnai Tu skubi atlikti namų darbus, norėdamas/-a greičiau pradėti naudotis internetu?	1	2	3	4	5
7. Kaip dažnai Tu nepaisai savo pareigų (pvz., neatlieki mokyklinių namų darbų, darbų namuose), nes pirmenybę teiki buvimui internete?	1	2	3	4	5
8. Kaip dažnai Tu pradedi naudotis internetu, kai jautiesi prislėgtas/-a, nusiminęs/-usi?	1	2	3	4	5
9. Kaip dažnai Tu naudojiesi internetu, kad išvengtum liūdesio ar pamirštum kitus nemalonius jausmus?	1	2	3	4	5
10. Kaip dažnai Tu nerimsti, jautiesi nusivylęs ar suirzęs, kai neturi galimybės naudotis internetu?	1	2	3	4	5

Padėka

Šis straipsnis parengtas vykdant projektą „Priklausomybės nuo interneto naudojimo atpažinimo instrumentų pritaikymas plačiajai visuomenei prevencijos ir intervencijos tikslais“. Projektas finansuojamas Visuomenės sveikatos stiprinimo fondo lėšomis, kurį administruoja Sveikatos apsaugos ministerija. Sutarties Nr. S-164.

Straipsnio rengimui taip pat naudoti mokslinių projektų duomenys: 1) „Jaunesnio mokyklinio amžiaus vaikų interneto naudojimo sąsajos su jų socialine emocine raida bei santykiais su tėvais Latvijoje, Lietuvoje ir Taivane: tęstinis tyrimas“, finansuoto Kinijos Respublikos (Taivano) Nacionalinės

mokslo tarybos ir Lietuvos mokslo tarybos, sutarties Nr. S-LLT-18-3; 2) „Mokyklų oro taršos sezoniniai ypatumai ir jos poveikis pradinių klasių moksleivių sergamumui kvėpavimo takų ligomis ir alergija“, finansuoto Lietuvos mokslo tarybos, sutarties Nr. S-MIP-20–52. Nuoširdžiai dėkoju visiems tyrimų dalyviams ir mokslininkams, drauge vykdžiusiems šiuos svarbius mokslo tyrimus.



Lietuvos
mokslo
taryba

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THESES OF INTERNATIONAL CONFERENCE

“26th International Conference of European Association of Substance Abuse Research”
Kaunas, Lithuania, 11–14 May 2023

PRIEDAS

TARPTAUTINĖS KONFERENCIJOS TEZĖS

„26-oji tarptautinė Europos priklausomybės ligų mokslinių tyrimų asociacijos konferencija”
Kaunas, Lietuva, 2023 m. gegužės 11–14 d.

A.001 Thousands of papers but few actual cases of exercise addiction

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Exercise addiction is a popular topic in sports science and psychology, as reflected by the over 1000 published articles [5]. However, fewer than a dozen cases are available in the literature [4]. This shortage of case studies hints at the difficulty in studying affected individuals. Using the Components Model of Addiction (CMA [2]), we searched the internet for self-claimed exercise addiction stories until we identified 100 cases primarily reported by women that could meet the eligibility criteria for this yet undiagnosable dysfunction [3]. In addition to CMA symptoms, these cases involved *physical, psychological, and social harm*, the accepted cut-off criteria for exercise addiction [4]. The findings contradict the literature reports concerning gender differences [1]. Therefore, they raise the question of whether women are more affected than men or are more open to disclosing their problems based on the four-to-one ratio of the identified cases. The current work supports the large volume of research in the field of exercise addiction because either the prevalence of the dysfunction is more significant than expected or people are more open to disclosing their problems on various internet sites. However, the research direction should switch from mere questionnaire screenings to studying genuinely dysfunctional cases.

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A.002 Psychoactive substance use and alexithymia: A systematic review and meta-analysis

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Background. Both earlier and novel theories suggest that problems in emotional processing and emotion regulation are key factors in substance use disorders (SUD). Alexithymia has been conceptualized as a specific form of affect dysregulation containing difficulties in describing and identifying emotions, in differentiating between feelings and bodily sensations, poor and limited imagination, and an externally oriented cognitive style. The present study aimed to conduct a systematic review and meta-analysis on the association between alexithymia and any psychoactive substance use.

Method. Studies published between 1988–2022 were identified by a systematic search and 168 eligible studies were included in five meta-analyses.

Results. We found that (1) the correlation between substance use and alexithymia is small but significant ($r = 0.177$); (2) substance users have substantially higher alexithymia than nonusers ($g = 0.545$); (3) alexithymic participants have significantly but slightly higher levels of substance use than non-alexithymics ($g = 0.242$); (4) substance users are significantly but only slightly more likely to be alexithymic than nonusers ($OR = 2.392$); and (5) alexithymic individuals are not more likely to be substance users than non-alexithymics. Larger effects were observed among samples diagnosed with SUD, and the use of depressants, alcohol, opiates, and illicit stimulants had stronger relation to alexithymia. The difficulties in identifying feelings component of alexithymia showed the strongest association with substance use.

Conclusions. Our findings support clinical practice by suggesting the improvement of emotion regulation in SUD. Further research should investigate whether targeting emotional competencies in the prevention and treatment of SUD has a meaningful contribution.

Funding sources. This study was supported by the Hungarian National Research, Development, and Innovation Office (grant numbers: FK134807, FK128614, K143764). GK was supported by the Hungarian Brain Research Program (Grant: 2017-1.2.1-NKP-2017-00002), and the Hungarian Brain Research Program 3.0 (NAP2022-I-4/2022).

The authors have no conflict of interest to declare.

Ethical statement. The study followed the guidelines of the Declaration of Helsinki.

A.003 Work addiction and personality organization: results from a representative sample

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Background. Work addiction has already been examined in relation to several personality factors (such as narcissism, perfectionism, or self-esteem) and comorbid disorders (e.g., OCD, OCPD, ADHD). The aim of our study was to examine the possible association of the level of personality organization/disorganization and addiction to work, especially, it has never been investigated.

Methods. Data for the present study were based on the three waves of the Budapest Longitudinal Study, and the final representative sample includes 1,748 participants (females: 48.99%). Symptom severity of work addiction was measured by the Bergen Work Addiction Scale and the level of personality disorganization was assessed by the Inventory of Personality Organization.

Results. Latent class growth analysis was performed to identify different subgroups based on work addiction severity. The comparison of these latent classes shows that higher levels in Wave 1 as well as increases between Wave 1-3 in terms of working hours and overall personality disorganization were significantly associated with higher odds for increasing work addiction (from low to moderate levels).

Conclusion. Based on Kernberg's theory, there is a connection between the level of personality organization and the severity of addiction, and in the light of the present results, this is also true for work addiction. Our results emphasize that work addiction is similar to other chemical and behavioral addictions, therefore screening and prevention of the problem would be important.

Funding sources. Funding: The research was supported by the Hungarian National Research, Development, and Innovation Office (Grant numbers: KKP126835, K134807).

Conflict of interest. The authors have no conflict of interest to declare.

A.004 Policy recommendations on the legalization of recreational cannabis in Germany

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Background. The German Federal government is planning to legalize cannabis for recreational use in Germany. The coalition agreement only mentions the “controlled distribution of cannabis to adults for recreational use in licensed stores”. However, how this is to be implemented in detail and how the newly emerging market is to be regulated is currently being discussed and examined.

Methods. A systematic literature review was employed to examine the role of any legal market characteristic, including but not limited to product labelling, marketing, branding, age restrictions, and availability. In addition, we also performed a grey literature search. The main research questions were: How were the different dispensing modalities accepted and assessed, and what effects did they have on the knowledge and attitudes (perceptions) of the respective target groups? What were the effects on consumption, risk behaviour, and other health indicators? To assess the quality of the studies, we adapted the Newcastle-Ottawa-Scale (NOS) for cohort studies. Results of the studies were summarized and elaborated into a policy paper.

Results. N=68 studies were finally included in the review. We found studies on age limit, staff training, products, price, self-cultivation, product labelling, health warnings, availability, advertising, campaigns/education, school prevention, and THC limits in road traffic. Policy recommendations derived from the study findings will be presented.

Conclusion. The planned legalization of cannabis in Germany represents a fundamental paradigm shift, as the attempt is now being made to achieve public health protection not through prohibition but through state-controlled access to cannabis. Even if the empirical evidence regarding certain aspects is still limited, a look at the countries that have already legalized cannabis – with different approaches – helps to avoid potential unintended consequences.

Funding sources. German Federal Ministry of Health.

Conflict of interest. MR, JM, JK, and UV were involved in designing a study protocol for an experimental pilot study for licenced cannabis sales, funded by the federal state of Berlin. BJ and TH declare no conflict of interest.

Ethical statement. N/A (systematic review)

A.005 Attentional biases as a means to understand gambling behavior

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Background. Loot box (LB) is an informal catch-all terminology frequently used to describe software characteristics that provide players with randomized virtual rewards. Despite its “innocuous” appearance for players, it is a current topic of debate whether LB spending can be considered gambling and regulated as such. Research on LB consumption is still recent and scarce in terms of objective and direct methods since most studies rely on self-reported data provided by players. Despite this, some authors have suggested that cognitive biases present in gambling could also lead to harmful behaviours when it comes to LB overspending.

Objectives. The purpose of the present study is to explore the attentional biases in LB and gambling in order to understand the cognitive mechanisms underlying both behaviours.

Methods. The study will use data from self-report anonymous online surveys and from a behavioural task on a secure online platform. Using a Modified Posner Task (MPT), the Risky Loot Box Index (RLBI), and the Problem Gambling Severity Index (PGSI) as online measurement tools, this project aims to determine (i) how the presence of addictive-related images affects response time (facilitation biases) when participants are performing an attentional cueing task and (ii) the correlation between loot box severity, gambling severity and attentional facilitation effects.

Results. Faster reaction times for gambling and loot box related cues in the early orientation of attention in gamblers and LB consumers are expected to be observed, respectively. It is also anticipated to find a significant positive correlation between loot box spending, gambling severity and early attentional facilitation effects.

Discussion & Conclusion. Investigating the cognitive processes underlying loot box consumption is crucial to understanding its differences and similarities with other addictive behaviours such as gambling.

To the best of our knowledge, this is the first study dedicated to examining the underlying attentional processes in gamers and gamblers, who open loot boxes.

Our results could be beneficial when designing clinical treatments in this context, since as has been suggested, modifying the attentional biases for addiction-related stimuli can reduce craving and, ultimately, effectively diminish harmful habits.

Funding sources. None

Conflict of interest. The University of Gibraltar receives funding from the Gibraltar GamblingCare Foundation. However, this funding is not related to this study and the funding institution had no role in the study design or the collection, analysis, and interpretation of the data, or preparing the presentation.

Ethical statement. The authors declare that all procedures followed the ethical standards of the Declarations of Helsinki. The study protocol has been approved by the Research Ethics Committee at Gibraltar University.

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A.006 Opportunities and risks of (greater) digitalization of addiction prevention

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Background. Due to the Covid-19 pandemic, many addiction prevention services had to be discontinued or severely limited. In the context of the changeover to digital teaching and digital offerings in the context of addiction prevention, various problems arose, such as a lack of technical infrastructure and a lack of digital skills among many professionals. At the same time, there were drastic changes in social life in society.

Methods. On the one hand, qualitative individual interviews were conducted with specialists and teachers as well as focus group discussions with parents and adolescents. On the other hand, more than 1,200 people from the field of addiction prevention were surveyed quantitatively on the possibilities and barriers of digital addiction prevention, their own digital competencies, and their assessment of changes in consumption during the time of the Covid-19 pandemic.

Results. The study revealed significant deficits in the delivery of addiction prevention services during the Covid-19 pandemic. A lack of helpful digital offerings was outlined and the lack of awareness of existing opportunities was pointed out. In addition to a broad spectrum of training needs, the need to expand the digital methodological competencies of professionals also became apparent. With regard to the changes in consumption among young people during the Covid-19 pandemic, clear fears of an increase in consumption were identified.

Conclusion. It became apparent that there are clear reservations about digital addiction prevention offerings that need to be addressed in the digitalization process. Therefore the results of the study were condensed into 10 recommendations, which are aimed in particular at political decision-makers, addiction prevention experts, and actors from the fields of education and social science practice. They provide longer-term and fundamental strategies for improving the digitization of addiction prevention work.

Funding sources. The study was financially supported by the Federal Centre for Health Education (Germany).

Conflict of interest. None.

Ethical statement. Adolescents participated in the focus groups after obtaining permission from their legal guardians. No further ethical approval or consent for participation was required.

A.007 Determinants of alcohol screening and brief intervention implementation in primary health care in Kazakhstan: Results of a feasibility study and pilot cluster-randomized control trial

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Background. Identifying and addressing heavy drinking represents a major public health priority worldwide [1]. Alcohol screening and brief intervention (ASBI) in primary health care units (PHCUs) is a cost-effective preventive approach which can achieve substantial public health impact [2, 3]. In Kazakhstan, where alcohol use is particularly high compared to neighboring countries, ASBI is neither implemented in routine care, nor has it yet been evaluated. The aim of this pilot trial was therefore to assess the feasibility of ASBI in PHCUs in Kazakhstan.

Methods. A two-arm cluster randomized trial based on the RE-AIM framework was conducted in five PHCUs. Patients with AUDIT-C scores ≥ 4 for females and ≥ 5 for males received a brief face-to-face intervention delivered by a trained physician plus information leaflet (intervention group, IG) or simple feedback including a leaflet (control group, CG) [4].

Results. Among 7327 patients meeting the inclusion criteria 1148 patients were screened (15.7%, IG: 11.5%, CG: 27.3%). 12.3% (N = 141) were tested AUDIT-C positive (IG: 9.9%, CG: 15.1%). Of 112 physicians invited, 48 took part in the ASBI training, 31 finally participated in the study, 21 in the IG (2 PHCUs), 10 in the CG (3 PHCUs). The majority of physicians did not have difficulties performing the intervention [5].

Conclusion. ASBI implementation in PHC settings in Kazakhstan is feasible. Important implementation determinants are interest and willingness of PHCUs and physicians as well as adequate planning and financing. A full-scale randomized controlled trial is needed to deliver further relevant data on ASBI (and its effects) in Kazakhstan [5].

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Conflict of interest. UV received speaker's honoraria and travelling expenses from Mundipharma GmbH and received travelling expenses and an unrestricted educational grant from CAMURUS. BS received an unrestricted educational grant and travelling expenses from CAMURUS. The remaining authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical statement. The studies involving human participants were reviewed and approved by Ethical board of the Kazakh National Medical University in Almaty (application no. 641, IEC session no. 8(72)). The patients/participants provided their written informed consent to participate in this study.

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A.008 Work addiction and social relationships: A systematic review

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Background. Majority of the theoretical models and empirical studies has been addressed emerging issues of work addiction for individuals, resulting in problems in their mental, physical, and social health, along with the deteriorating quality of their lives in general. The goal of the present study is to systematically review all the findings on the relationship between work addiction and social life.

Methods. A systematic literature search in five databases was conducted using specific keywords. We included all the empirical, quantitative studies by year 2022 that investigated the relationship between work addiction and social life. Four inclusion criteria were applied: (i) using a psychometrically valid work addiction scale; (ii) applying any variable to measure social relationships; (iii) assessing parent-child relationship from the perspective of work addiction; and (iv) English language papers. A total of 102 studies were included in the review.

Results. A qualitative synthesis showed that work addiction is associated with more problems and conflicts in social life. The functions, quality, and satisfaction with social relationships were lower in work addiction, and an elevated level of conflict was reported. These problems affected different life areas: partner and family relationships, community- and friend relationships, and workplace relationships.

Conclusion. Work addiction associates with problems in social relationships, however, the direction of the relationship is still unclear. Since the quality of social relationships and social support are key factors in physical and mental health, the prevention of work addiction should be more accentuated in organizational and clinical settings.

Funding sources. The study was supported by the Hungarian National Research, Development, and Innovation Office (FK134807, KKP126835).

Conflict of interest. No.

Ethical statement. No.

A.009 The neurocognitive profile of work addiction and gaming disorder: A focus on cognitive flexibility

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Background. Empirical studies emphasize the alterations of executive functioning in the development and maintenance of different addictions [1, 2]. A limited amount of research has found alterations in cognitive flexibility in internet gaming disorder (IGD) [3], while the neurocognitive background of work addiction (WA) has never been investigated. Studies using self-report questionnaires suggest that individuals with WA are characterized by a higher degree of compulsivity, perfectionism, conscientiousness, and a stronger need for control [4,5]. These results can be linked to the capacity of cognitive flexibility. The aim of the present study was to compare cognitive flexibility in IGD and WA.

Methods. We divided the participants into a WA group (n = 39), an IGD group (n = 15), and a control group (n = 62), based on their scores on the Work Addiction Risk Test and the Ten-Item Internet Gaming Disorder Test. The participants completed the short form of Five-Factor Obsessive-Compulsive Inventory (FFOCI), and reaction time based neuropsychological tasks assessing executive functions. Cognitive flexibility was measured by the Wisconsin Card Sorting Test (WCST).

Results. We did not find any significant group differences in the WCST, but the WA group showed significantly higher scores on FFOCI compared to the IGD group and the control group.

Conclusion. We found neurocognitive similarities in WA and IGD, namely, both behavioral addictions showed intact cognitive flexibility. However, the WA group showed significantly higher self-reported compulsiveness which may indicate differences in the underlying cognitive mechanisms. This is an ongoing study; we are still collecting data to have larger samples.

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Conflict of interest. The authors declare that they have no conflict of interest.

Ethical statement. The study was conducted following the Helsinki Declaration and the ethical permission was issued by the institutional Research Ethics Committee.

A.010 Excessive screen use among primary school-aged children

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Background. Children's screen use is receiving attention from scholars from different fields due to its potential harms. According to current recommendations by pediatric associations primary school-aged children should not exceed two hours in front of screens per day.

Methods. Two surveys were conducted in April 2021 (N = 1915) and October 2022 (N = 318) with parents of children attending grades 1-3 of primary schools (Mean age = 8.4) in Czechia (April 2021 and October 2022), Slovakia (April 2021) and Finland (April 2021).

Results. We found that most children did not meet the recommended limit both in April 2021 and October 2022. The most important sources of screen time were television and smartphones, especially if children have them for their exclusive personal use. Variables associated with excessive screen time was gender, age, and parental education.

Conclusions. Interventions for families that would help parents regulate their children's smartphone use are warranted.

Funding sources. Grant Agency of Czech Republic: 21-31474S; Charles University: Cooperatio (Health Sciences).

Conflict of interest. None.

Ethical statement. The study was approved by Ethical Committee of Charles University - Faculty of Education (11/2020).

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A.011 Gaming disorder and gaming time: A controversial matter

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Introduction. Video games have become a popular leisure activity and an exciting medium among many. A prevailing opinion indicates that prolonged play is necessarily problematic and harmful. However, the information available regarding its extent and effects is limited and conflicted. Furthermore, while gaming disorder (GD) is characterized by prolonged gaming time, it does not entail an autonomous effect on its course. This study aimed to explore how much gaming time is associated with reported GD symptoms according to the American Psychiatric Association (APA) and World Health Organization (WHO) frameworks and examine the relationship between gaming time and variables representing negative symptoms.

Methods. Data was collected using survey methodology among a sample of video gamers (N=14,740, Mage=24.14 years, 89.3% males) during the first wave of COVID-19. A one-way analysis of variance was conducted to explore the differences in average weekly gaming time across the APA and WHO frameworks, and a latent profile analysis was performed to examine how different average weekly gaming time values relate to negative symptom variables and specific gaming motives.

Results. Findings revealed a positive linear association between gaming time and GD symptoms across the two frameworks. In addition, five profiles representing varying levels of negative symptom variables and specific gaming motives were identified. Remarkably, the profile constituted by a large proportion of the sample (35%) and reporting playing for nearly 30 hours per week showed very mild to no negative symptoms.

Conclusion. The current findings extend the knowledge regarding the features of disordered gaming and question the adversity frequently attributed to prolonged gaming time.

Funding sources. None.

Conflict of interest. None.

Ethical statement. Approved.

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A.013 Development of the Gamma-hydroxybutyrate withdrawal symptom questionnaire

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Background. Recently, the GHB withdrawal syndrome during inpatient detoxification has been characterised. GUD is associated with a potentially severe withdrawal syndrome, including hemodynamic instability, tremors, anxiety and hallucinations. GHB has a narrow time-frame and short half-life, requiring frequent GHB dosing to prevent withdrawal symptoms. As GHB withdrawal symptoms can rapidly progress to a psychosis or delirium, close monitoring during detoxification is important. Due to the lack of a GHB specific withdrawal questionnaire, currently long generic withdrawal questionnaires are administered up to every 2 hours to assess GHB withdrawal symptoms during detoxification. In order to improve the monitoring of GHB withdrawal symptoms during detoxification and to make it less time-consuming for both patients and staff, there is need for a more concise and GHB-specific withdrawal scale.

Objectives. The aim of this study is to compose a concise GHB-specific withdrawal scale by 1) identification of the factor structure of the current GHB withdrawal scales, and 2) assessment of the psychometric properties of the resulting GHB-specific withdrawal scale.

Method. 285 patients with GHB use disorder admitted for inpatient GHB detoxification were included in this study. GHB withdrawal was assessed by administering the Subjective Withdrawal Scale (SWS). To identify the factor structure of the SWS, a principal component analysis (PCA) with Direct Oblimin Rotation was performed. The pattern matrix was used to assess the factor loading per item, selection was performed by 1) excluding items and 2) including items. Psychometric evaluation of the novel questionnaires compromised concurrent validity, convergent validity and reliability.

Results. The PCA resulted in eight components (Eigenvalue > 1.0), after item selection (factor loading > 0.4) five novel scales were created: List 1 (27 items), List 2 (8 items), List 3 (9 items), List 4 (16 items) and List 5 (16 items). All lists showed good concurrent and convergent validity. List 1, 4 and 5 showed a good to excellent internal inconsistency, reliability of List 2 and 3 was dubious.

Conclusions. This is the first study composing a valid and concise GHB-specific withdrawal questionnaire for monitoring of GHB withdrawal during inpatient detoxification. When compiling the novel GHB Withdrawal Symptom Questionnaire (GWSQ) its psychometric properties, clinical relevance of the symptoms and the need of clinicians for a shorter, less-time consuming, questionnaire were taken into account. We recommend implementation, validation and evaluation of List 5 in clinical practice as novel GWSQ to monitor GHB withdrawal during inpatient detoxification, consisting of the following 16 items: "running nose", "fever", "restless feeling", "muscle aches", "abdominal cramps", "epileptic seizures", "slow, sluggish feeling", "gloomy feeling", "tensed, stressed feeling", "sleeps a lot", "eats a lot", "having lively dreams", "having unpleasant dreams", "visual hallucinations", "auditory hallucinations" and "diarrhea".

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Conflict of interest. None

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A.014 Current Issues in the Opioid Maintenance Treatment

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Opioid use disorders (OUD) are associated with high all-cause and cause-specific, incl. drug-specific, mortality, somatic and mental morbidity. Opioid maintenance treatment (OMT) aims to reduce the negative effects of opioid use disorders. However, OMT is not a static treatment modality, its benefit should be continuously monitored and, if necessary, treatment procedures should be modified to further increasing the standard of care provided.

We will present an overview of the main findings, which is based on comparative data from various national health and population registers that are available in the Czech Republic, Denmark, and Norway. For example, all-cause and cause-specific mortality, somatic and mental morbidity in patients in OMT, specific differences in different OMT settings (countries), treatment trajectories of patients in OMT, or drugs used in OMT (methadone, buprenorphine and buprenorphine with naloxone).

The cross-sectional results show that a whole range of negative health problems can be prevented (for all genders and age groups). The findings support efforts to improve screening and preventive health initiatives among people with OUD in OMT.

Funding sources. The study was supported by the: Ministry of Health of the Czech Republic, grant No. NU20-09-00066.

Conflict of interest. None.

Ethical statement. Available at request.

A.015 Mortality and morbidity in young adults with substance use disorders

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Background. Early emergence of substance use is associated with high morbidity. Substance use disorders (SUDs) have been demonstrated to be accompanied by excess mortality in adulthood. Mortality and morbidity in children and young adults have not been systematically studied in Czechia so far.

We will present the:

1) Results of the scoping literature review focused on mortality, morbidity in children and young adults (up to age 24). Articles published in (PubMed, SCOPUS, and PsycINFO databases etc.) between years 2000 and 2022 will be included in the review.

2) Study design with the overarching objective to study mortality, physical and mental morbidity, multimorbidity, treatment characteristics, and treatment careers in a nation-wide cohort of young patients (aged up to 24 years) who were treated for the ICD-10 substance use disorder (SUD; ICD-10 diagnostic chapters F10-F19) between years 2000–2022 in the Czech Republic. In this study we will utilize nation-wide health registries that allow us to observe individual patients with early onset of SUDs.

Key Words: substance use disorders, patient, adolescents, young adults, mortality, morbidity, health registry

Funding sources. Ministry of Health of the Czech Republic, grant No. NU20-09-00066.

Conflict of interest. NA.

Ethical statement. Approved by the ethical committee.

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A.016 Spontaneous remission of addiction – systematic over- and underestimation

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Background. We are confronted with a number of extremely contradictory results concerning the spontaneous remission of addicts. This ranges from very low remission rates in treated addicts to extremely high remission rates within short periods of time in untreated addicts.

Methods. In order to shed light on these contradictions, some well-known publications were analysed, and theoretical reasons were sought as to why these contradictions occur.

Results. There are substantial artifacts, easily explained in probabilistic terms, explaining why remission rates (whether therapy-induced or spontaneous) are systematically underestimated in clinical contexts and systematically overestimated in epidemiological studies. The systematic underestimation is primarily explained by a form of Berkson's artifact that Cohen and Cohen (1984) labelled this "The clinician's illusion". The overestimation is primarily explained by a regression to the mean artifact (Campbell & Kenny, 1999). Both artifacts have been known for many decades but are usually neglected when discussing results. In addition, there are sometimes highly questionable assumptions made when interpreting data that were collected on a routine basis (e.g. Winick, 1962 or Robins et al., 1974).

Conclusion. The above problems should be given much greater focus in empirical studies focusing on assessing remission. Some biases can be mitigated or prevented when designing the study, and some can be partially or fully compensated when analysing the data. For existing studies showing enormous remission rates, it is usually not possible to assess the extent to which these reflect real changes and the extent to which they reflect artifacts.

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Funding sources. None.

Conflict of interest. None.

Ethical statement. None.

A.017 Personality traits as predictors of recovery from SUD

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Background. Personality is one factor suggested to predict recovery from SUD [1]. Different SUD cohorts score high on Neuroticism and low on Conscientiousness and Agreeableness, while findings on Extraversion and Openness are more inconclusive [2]. This study (1) investigated personality scores in a SUD cohort, and (2) whether personality scores at treatment initiation predicted short- (STR) and long-term recovery (LTR).

Methods. Treatment-seeking patients with SUD ($n = 123$) completed the NEO Personality Inventory – Revised during the first half year after inclusion in the Stavanger Study of Trajectories of Addiction (STAYER, $n = 208$). STR was defined based on AUDIT-C and DUDIT-C scores at one-year follow-up, while LTR was estimated based on scores at follow-ups at six-, seven-, and eight-year.

Results. This SUD-cohort had higher scores on Neuroticism and lower scores on Conscientiousness, Agreeableness, Extraversion, and Openness compared to the norm sample. Neuroticism (inversely) and Extraversion (positively) predicted STR. No other traits significantly predicted STR or LTR. Still, the effect sizes on LTR for Neuroticism ($d = 0.36$) and Extraversion ($d = 0.21$) indicated that these traits have relevance for LTR as well. In addition, the effect sizes for Conscientiousness, although insignificant, were also above the cut-off for what is usually considered a practical significant effect (STR: $d = 0.31$; LTR: $d = 0.27$).

Conclusion. This cohort had deviant scores on all five traits and a more deviant profile predicted worse outcome. More studies on personality traits and LTR is required to understand their possible mutual influences on the recovery process.

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Funding sources. The Western Norway Regional Health Authority, Strategic Initiative for Substance Use Research (912003), Western Norway Regional Health Authority (F-12161), and KORFOR funded this research.

Conflict of interest. None

Ethical statement. STAYER was approved by the Regional Ethical Committee (REK 2011/1877).

A.018 Effectiveness of the German Quitline for smoking cessation: preliminary results from baseline data and 3-month measurement

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Background. Smoking quitlines can be considered a measure with major public health potential. The effectiveness of telephone counselling for smoking cessation has been demonstrated in a systematic review, which shows that smokers who had called quitlines and received proactive telephone counselling were 1.38 times more likely to become abstinent than smokers who were supported by self-help materials or brief counselling at a single call (minimal intervention controls). The present study aims to evaluate the effectiveness of the national German Smokers Quitline compared to a standard self-help approach in reaching abstinence in adult smokers.

Methods. Using a two-arm randomized controlled trial 750 daily smokers were recruited and randomly assigned to either telephone counselling or the control group. In the telephone condition, participants received up to six proactive phone calls during an intervention period of three months. The principles of telephone counselling are built upon the theory of social learning. It combines motivational interviewing techniques with cognitive behavioural approaches in treating substance use. The control group received a self-help brochure on smoking cessation. Data collection took place at baseline, and three months after the start of the intervention. 12-month data collection is ongoing. The primary outcome measure after three months is the seven-day prevalence of abstinence. Secondary outcome measures include quit attempts and nicotine dependence among smokers who have not quit and self-efficacy. Several covariates such as socio-demographic characteristics, craving, smoking cue coping methods, received social support and use and acceptability of the received intervention (e. g. satisfaction) were assessed.

Discussion. Data are currently being analysed. The first results will provide insights into the short-term effectiveness and participants' satisfaction of proactive telephone counselling. Higher smoking cessation rates are expected among participants in the telephone counselling condition compared to the control condition.

Funding sources. The trial is funded by the Federal Centre for Health Education (BZgA) on behalf of the German Ministry of Health (Z2/21.21.11/20). The funding source had no role in the design of the study and will not have any role during its execution, analyses, interpretation of the data, or decision to submit results.

Conflict of interest. The authors declare that they have no competing interests.

Ethical statement. This study has been approved by the Ethics Committee of the German Psychological Society (DGPs). It follows the Consolidated Standards of Reporting Trials (CONSORT) and meets the guidelines and methodology of the Standard Protocol Items Recommendations for Interventional Trials (SPIRIT). It complies with the principles stipulated in the Declaration of Helsinki [56]. The study is registered in the DRKS public database (trial registration number DRKS00025343). All substantial protocol deviations or modifications will be communicated to the Ethics Committee and the DRKS. Upon enrollment, participants will provide written informed consent. The consent form will be provided on request.

A.019 Prevention paradox revisited from general population survey perspective

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Background. A concept of preventive paradox was elaborated as early as forty year ago. Its major message was that alcohol policy efforts focus on individuals and population groups where individual risk of alcohol-related problems is the highest such as alcohol addicts while major bulk of problems is produced by average consumers who could not be considered alcoholics or dependent.

Methods. In a current study utilizing Composite International Diagnostic Instrument (CIDI) carried out in Poland in 2018-2019 period probabilistic sample of about 12 thousand people aged 18+ were interviewed. Response rate was slightly over 60% and average duration of the interview was one hour and a half. CIDI instrument allowed for generating over 30 diagnoses in ICD 10 and DSM-IV, including alcohol disorders.

Results. On average, alcohol use disorders were confirmed by 7.3% respondents while that percentage among men surpassed 13%. Much higher prevalence rates were identified among men who were divorced (34%), men on disability pension and among unemployed men, 48 and 34%, respectively. However, if it comes to absolute figures the highest number of men with alcohol use disorders are among men who are married and employed. Despite the high risk of alcohol disorders for men who are divorced and have no regular employment, relevant services can expect much more clients who are married and employed.

Conclusions. Therefore, alcohol prevention and treatment, including brief interventions should not be narrowly focused on high risk populations but be extended to target general population.

Funding sources. National Health Programme.

Conflict of interest. None.

Ethical statement. The study was approved by the Ethical Board at the Institute of Psychiatry and Neurology, Warsaw, Poland.

A.020 The potential role of cariprazine in substance use disorders

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Background. In the last two decades, the dopamine D3 receptor (DRD3) has gained extensive attention in substance use disorders (SUDs) regarding its anatomical localization and its role in drug-related processes [1]. Preclinical studies have shown that antagonists of DRD3 change addictive behaviours [1]. Interestingly, it has been suggested that cariprazine (CAR) which is a novel antipsychotic with partial agonist effect on DRD3 may be a treatment option for patients diagnosed with schizophrenia (SCZ) with co-morbid SUD [2, 3].

Objective. Therefore, the main goal of the present work was to provide an overview of past and current research on the potential role of CAR in SUDs.

Methods. Systematic review was conducted in December of 2022. 28 articles were identified with the keyword “cariprazine and substance use disorder” from four databases (PubMed, ScienceDirect, Web of Science, Cochrane Registry).

Results. Findings based on 6 included articles show that CAR is a more effective and safe medication in SCZ with co-morbid SUD than other atypical antipsychotics. It could also be suggested that in other psychiatric conditions where substance abuse is occurring CAR is also a good treatment option. Furthermore, it could be hypothesized that CAR may be the best antipsychotics in the treatment of SUDs such as stimulant-use disorders.

Conclusion. Although, further researches are needed to determine whether DRD3 modulators are effective and safe medications for the treatment of SUDs, past and current research data suggest that the systematic evaluation of the role of DRD3 bears a critical importance regarding new therapeutic perspectives in SUDs.

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Conflict of interest. No conflict of interest to declare.

Ethical statement. Ethical approvals were not needed.

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A.021 Comprehensive examination of severe alcohol withdrawal syndrome: risk assessment of alcohol-related seizure and delirium tremens

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Background. Complicated or severe alcohol withdrawal syndrome (SAWS) is associated with substantial morbidity and mortality(1,2). However demographic variables and clinical characteristics of alcohol-related seizure (ARS) and delirium tremens (DT), furthermore the interactions among ARS, DT and AWS have not yet been evaluated in detail.

Objective: The aim of the present work was to reveal the correlates and risk factors of ARS and DT in AWS.

Methods. Our ongoing retrospective study was conducted at the Department of Psychiatry, University of Szeged. A total number of 2436 medical charts of inpatients diagnosed with AWS were listed between 2008 and 2020. Demographic (sex, age) and clinical characteristics (occurrence of ARS and DT, past history of AWS, ARS and DT, laboratory parameters) were examined. Two analyses were conducted by forming two groups (ARS+/- and DT+/-). Statistical analyses were performed by Chi-squared test and binary logistic regressions.

Results. The proportion of complicated withdrawal or SAWS was 24.1%. In the total sample the occurrence of ARS and DT was 12.3% and 13.9%. Lower mean age, past history of DT and ARS had a significant explanatory role for the development of ARS. Higher mean age, past history of DT and ARS, elevated aspartate/alanine aminotransferases quotient and elevated gamma-glutamyl transferase levels had a significant explanatory role for the development of DT.

Conclusion. Our present findings by demonstrating that past history of SAWSs is the most important risk factor of future episodes of ARS and/or DT suggests the significance of kindling mechanism in the risk assessment of SAWS(3).

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Conflict of interest. No conflict of interest to declare.

Ethical statement. The study was approved by the Human Investigation Review Board, University of Szeged.

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A.022 Measurement and correlates of alcohol craving

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Background. Craving is one of the most significant indicators of the maintenance of alcohol use disorder (AUD). Craving causes cognitive, behavioural, and emotional changes in the individual, thus modulates the risk of relapse [1]. Despite its importance in AUD, there is a shortage of instruments for the measurement of craving for alcohol.

Objective. The aim of this study was to translate the Penn Alcohol Craving Scale (PACS) [2] and the Multidimensional Alcohol Craving Scale (MACS) [3] to Hungarian, and to analyse their psychometric properties and correlates.

Methods: The scales were translated with the “back-translation method”, face validity was proven. Patients diagnosed with AUD (N = 52) were involved in the study. Demographic data was collected, the severity of AUD was measured with the Alcohol Use Disorders Identification Test (AUDIT), the level of anxiety was examined with the Spielberger State-Trait Anxiety Inventory (STAI), and craving was measured with the PACS and MACS.

Results. The Cronbach's Alpha of the MACS ($\alpha = 0.91$) was slightly higher than that of the PACS ($\alpha = 0.88$), but both of their reliabilities are high. Both scales showed positive correlation with the AUDIT, the AUDIT-consumption, and the AUDIT-dependence subscales. Furthermore, the MACS showed positive correlation with the STAI-S scores.

Conclusion. Our preliminary results indicate that both scales can be reliable instruments for the measurement of alcohol craving. Additionally, there is a connection between craving measured by the MACS and state anxiety.

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Conflict of interest. No conflict of interest to declare.

Ethical statement. The study was approved by the Human Investigation Review Board, University of Szeged.

A.023 Evaluation of standard interventions in substance use disorders: Evaluation of changes following data-science and changes in family burden in an affected family member intervention

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Background. Jellinek offers a broad range of interventions and services aimed at treating addiction, such as the 5-Step Method for affected family members (AFMs), and the Jellinek Digital Self-help (JDSH), which aim is to reduce the use of alcohol, tobacco and other drugs. Both interventions have been scientifically evaluated in two separate studies.

Methods. In the first study, the routinely delivered 5-Step Method in the Netherlands was evaluated using the Family Member Questionnaire (FMQ) at baseline (N = 145), end-of-treatment (N = 102), and 3-month post intervention (N = 70). In the second study, adjustments made to the JDSH based on machine learning were evaluated by comparing rates of adherence, engagement, and intervention success across cohorts.

Results. The participants finishing the 5-Step Method reported significantly lower rates of Total Family Burden after completion, when comparing measurements at baseline and end-of-treatment ($d = 0.56$), and measurements at baseline and 3-month post intervention ($d = 0.85$). In the second study, preliminary analyses indicate that promoting stopping rather than reducing use led to higher rates of adaptation of quitting as treatment goal and participants using the JDSH reported significantly lower rates of engagement after implementing the changes.

Conclusion. The 5-Step Method was found to be an promising intervention for AFMs in the Netherlands. The adjustments made to the JDSH did not lead towards increased rates of adherence, engagement, and intervention success across cohorts. Follow-up analyses on the JDSH study are performed to investigate the reliability of the first preliminary results.

Funding sources. This work was supported by ZonMw, project number 555003024.

Conflict of interest. None

Ethical statement. Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

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A.024 Identification and characterisation of different types of users of new psychoactive substances

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Background. As research indicates, there is not only a wide variety of new psychoactive substances (NPS) on the market but also a wide variety of NPS users with different motives for use [1]. Frequently described user groups include members of online communities, nightlife attendees, and marginalised people [2, 3]. However, the user groups identified in the literature are usually only based on the respective recruitment strategy, which can lead to some overlap between the groups [4]. The present study aims for a different methodological approach by 1) identifying different subtypes of NPS users recruited via multiple strategies based on their patterns of use, and 2) exploring the extent to which these types differ regarding their motives for and experiences with NPS use as well as their risk assessment and views on the relevant legislation.

Methods. A mixed methods approach was adopted. First, to identify different types of NPS users, a latent class analysis (LCA) was carried out using data on use patterns of a total of $n = 279$ NPS users from different settings who had participated in an online survey. Semi-structured narrative interviews were conducted with $n = 113$ of the 279 NPS users to further explore what characterises these users in terms of the group they are most likely to belong to. The interviews were analysed using qualitative content analysis according to Mayring [5].

Results. Three classes were extracted: Class 1 (34,3%, $n = 95$) was associated with the use of multiple substances consumed at least once within the last 12 months, Class 2 (30,8%, $n = 86$) in particular with the use of research chemicals/bath salts, but also cannabis, stimulants and hallucinogens, and Class 3 (34,9%, $n = 97$) with the use of herbal mixtures as well as cannabis. According to the interview data, Class 1 ($n = 50$) mainly included marginalised people with problematic use, but also nightlife attendees, psychonauts, and others. Classes 2 ($n = 21$) and 3 ($n = 42$) comprised a broad spectrum of recreational users whose NPS consumption was often curiosity-driven and/or related to legal aspects. Class 2 was dominated by people who like to consume when in company or in party settings, as well as psychonauts. The consumption patterns of Class 3 members were often characterised by rather infrequent use of herbal mixtures, partly in combination with frequent to daily use of cannabis, or (almost) daily use of herbal mixtures.

Conclusions. The findings illustrate that the classification of NPS users into different types is a highly complex matter. The methodological approach used in the present study can be considered suitable for this purpose. However, future research should incorporate more differentiated patterns of use when conducting an LCA, provided that the data situation allows for this. An additional in-depth investigation in the context of qualitative interviews is also recommended to be able to identify and understand the NPS users in all their facets and to contribute to the optimisation of specific prevention measures.

Keywords. Latent class analysis, mixed methods, new psychoactive substances, qualitative research, user characterisation.

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Conflict of interest. None

Ethical statement. The project on the evaluation of the impact of the NpSG was approved by the German Society of Psychology (LK 092017). Written informed consent was obtained from all study participants.

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A.025 Cocaine Use Disorder in Germany: Prevalence and characteristics of clients in treatment 2021

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Background. Cocaine Use disorder (CUD) is considered a public health burden and is linked to severe psychological and physiological morbidities. Despite the harmful consequences of repetitive use, global reports show increases in consumption rates and treatment numbers across Europe. To date, psycho-social interventions are considered the treatment of choice for CUD. Characterizing help-seeking individuals can provide insights into the current state of care and could contribute to the development of more targeted treatment approaches.

Objectives. This study reports the prevalence and demographic characteristics of outpatients with CUD in German treatment facilities in 2021 and gives a comparison to 2011.

Method: Data was derived from the Statistical Report on Substance Abuse Treatment in Germany (DSHS). The current study uses data from 2021, which was collected using the German Core Dataset (KDS 2.0 and KDS 3.0 (valid from 2017 onwards)). CUD was diagnosed according to the ICD-10 criteria.

Results. Treatments for CUD represented a share of 7.9 % of all entrants related to illicit drugs in 2021. In comparison to ten years ago, the average client with CUD in 2021 is older (2011: M = 32.6; 2021: M = 34.8), more likely to have a high education (19.4% vs. 10.8 %), and to be employed (52.1 vs. 34.8 %).

Discussion & Conclusion. In comparison to other EU countries, German care numbers for CUD are still comparably low in 2021. Nevertheless, expansions of illegal transportation routes and demographic shifts in users could lead to increases in consumption rates and consequently to increases in the need for care. Therefore, continuous follow up of case number shift in clientele characteristics but also treatment strategies and outcomes appear paramount for targeted health care planning.

Funding sources. None.

Conflict of interest. None

Ethical statement. None.

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A.026 Not all who use are lost: individual differences in GHB consumption in a new voluntary GHB self-administration model in outbred rats

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Background. The recreational use of gamma-hydroxybutyric acid (GHB) has strongly increased over the past decade, concomitantly leading to increased rates of GHB use disorder (GUD). GUD is characterized by a severe withdrawal syndrome, frequent overdosing and high relapse rates. Due to the limited number of controlled studies on GHB use and GUD, evidence-based treatment plans are scarce, while the cognitive and neurotoxic effects of GHB use remain elusive. In order to study the causes and consequences of GHB use disorder, and eventually allow for the improvement of treatment plans, a GHB self-administration model is required.

Methods. We established and extensively characterized a new voluntary GHB self-administration model in rats. Animals had access to GHB and water in their home cage for three months, during which behavioral parameters were periodically assessed. Following removal of the GHB from the home cage, animals were trained and tested in an operant environment with access to GHB. We exploratively assessed the effect of anxiety-like behavior and basal cognition on GHB intake, and vice versa.

Results. All animals consumed pharmacologically relevant levels of GHB in their home cage, which remained stable over time. No clear withdrawal symptoms were observed following removal of GHB from the home cage. Under operant conditions, two-thirds of the animals were successfully trained to press a lever for GHB. Responding under operant conditions was characterized by strong inter-individual differences, where only a subset of animals showed either high motivation for GHB, habitual GHB-directed responding, and/or continued responding for GHB despite an aversive taste. Home-cage GHB consumption caused a residual negative effect of long-term object recognition memory compared to a control group. Home-cage GHB consumption did not affect anxiety-like behavior or vice versa.

Conclusion. We were able to successfully establish a GHB self-administration model that reflects individual susceptibility for addiction-like behavior. Our model can serve as a basis for the development of a GUD-specific model, contributing to the exploration of novel therapies for GUD.

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Conflict of interest. The authors declare no conflict of interest

Ethical statement. All procedures were in accordance with the Dutch legal ethical guidelines of animal experiments, as approved by the Central Committee Animal Experiments, The Hague, the Netherlands.

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A.027 Impact of a smoke free policy on smoking behaviour of clients in treatment for substance use disorder

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In the Netherlands, approximately one in five people smoke tobacco (Trimbos-instituut 2021). In the population of people with a substance use disorder, this percentage is many times higher: 75% of clients at Jellinek are diagnosed with a comorbid disorder in the use of tobacco. In 2018 Jellinek became a smoke free institution. By implementing 'Jellinek Smoke free', a policy has been implemented to facilitate smoking cessation in clients with a comorbid tobacco use disorder seeking treatment for substance use disorders at Jellinek. The aim was to investigate whether the implementation of the new policy impacted smoking behaviour of clients. Based on data from anonymized client files (N = 4417), changes in smoking behaviour (cessation or reduction) were analysed for clients with other addictions who started treatment in 2016 versus clients who started in 2019- after the implementation of the smoke free policy. After implementing Jellinek Smoke free, significant changes in smoking behaviour occurred in the client population as a whole with a comorbid tobacco use disorder, in treatments where a cessation period was part of treatment as well as with light and moderate smokers.

Implications of these results in terms of advantages and challenges of this smoke free policy in clinical practice are discussed and follow-up research, including focus groups is shortly highlighted.

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A.028 A Quality framework for Addicted Patients in Forensic Services in the Netherlands

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Background. Forensic epidemiological studies in the Netherlands among more than 30 000 patients show that 28% are diagnosed with substance abuse or dependence based on the DSM classification (1). Recent dramatic incidents forced the services to improve treatment and to focus on addiction problems. One of the improvement projects financed by the Ministry of Justice and Safety is to develop a quality framework (QF). In the Netherlands about 190 units offer service and treatment for about 20 000 patients a year.

Method. The framework was created by applying a consensus method: “Poldermodel”. About 150 representatives from the 8 umbrella organizations were appointed to focus groups.

Results. The quality framework 2022 is a document of 65 pages. The core are 106 standards, which are assigned to 34 quality aspects and 5 quality pillars. The top 8 umbrella organizations authorized the definitions of the aspects and standards. The QF is registered in the national database of quality instruments (ZIN).

Discussion and Conclusion. The QF is as far as known unique for forensic services in Europe. The implementation plan for the 190 services stretches to 2028. The larger services such as Inforsa of Arkin in Amsterdam are in the lead. The Expertcenter Forensic Psychiatrie (EFP) in Utrecht is in charge of coordination and monitoring the progress. A translation in other languages might give an impulse for quality improvement for addiction treatment of forensic services.

Keywords: Addiction treatment, Forensic services, Quality system, Consensus procedure

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Funding sources. Dutch Ministry of Justice

Conflict of interest. Udo Nabitz was part of the projectteam of the QF and is chair of the NIP section forensic psychology. There are no financial benefits by publishing the FQ.

Ethical statement. No data of patients were collected, processed or reported. The Dutch Code for Academic Research was leading (Gedragscode VSNU)

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A.029 Bilateral frontal tDCS enhances cue-induced attentional orienting to reward associated stimuli, evidence from electrophysiology

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Background. Attentional bias to reward-associated stimuli has been implicated in substance-related addiction[1], which may drive persistence of the disorder, and resilience to treatment. In the current study, we explored whether tDCS, aimed at reducing approach relative to avoidance tendencies, could be used to reduce attentional bias for rewards.

Methods. Participants (n=65, 19 men, 46 women) between 18–58 years old (M = 24, SD = 6) performed a Visual Spatial Cueing (VSC) task with a neutral and reward condition, while their electrophysiological activity was recorded. Subsequently, they received either tDCS or sham-tDCS neuromodulation. tDCS consisted of 20 minutes right frontal stimulation of 2 mA, with the anode at site F4 and cathode at site F3. Subsequent to the intervention, the assessment was repeated (VSC task incl. EEG).

Results. Results showed that response times varied as a function of cueing, with speeded response times to validly cued targets relative to invalidly cued targets, which underscores the validity of the paradigm. Importantly, contrary to our hypothesis, tDCS resulted in an enhancement of attentional orienting, specifically in the reward context as evidenced by a tDCS induced increase of the cue-associated “Late Directing Attention Positivity” (LDAP). This effect could not be explained by tDCS effects on asymmetry of frontal brain activity, indexed by frontal alpha asymmetry.

Conclusion. Our results suggest an alternative tDCS mechanism, and are in line with previous reported tDCS associated general enhancement of noradrenergic neurotransmission [2,3].

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Conflict of interest. The authors declare no conflict of interest

Ethical statement. All participants were fully informed and provided their informed consent prior to any procedures. The study was approved by the Research Ethics Committee and was conducted in accordance with the Declaration of Helsinki and its later amendments.

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A.030 The effect of mindfulness on voluntary and stimulus-driven attention in a neutral and reward context

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Background. Substance abuse has been associated with attentional bias for drug-associated cues [1]. Studies have shown that mindfulness may affect such attentional bias [2, 3, 4]. However, there is inconsistency across studies with respect to the direction of the effect, where some studies show a positive association [2] whereas other show a negative association [3, 4]. The aim of the current study was to address this apparent incongruency. We argue that the discrepancy may be explained by the different components of attention that are affected by mindfulness. In the current study, we assessed the relationship between mindfulness and voluntary and stimulus driven attention, and assessed the moderating role of reward context.

Methods. Participants (n=95, 30 male and 65 female) with an average age of 26 (SD = 7) performed a Visual Spatial Cueing (VSC) task with a neutral and reward condition, which yields an index of voluntary attention and stimulus-driven attention. In addition, electrophysiological resting state activity was recorded to assess asymmetry of frontal brain activity which has been associated with approach- relative to avoidance-associated behaviour.

Results. Mindfulness was associated with a reduction of the benefit of cueing in terms of response time, but this effect was not moderated by reward context.

Conclusions. Not specific to context, mindfulness enhanced stimulus driven attention, while decreasing voluntary attention. Hence, mindfulness seems to enhance attentional bias for task-relevant unexpected stimuli, while reducing attentional bias for task-relevant expected stimuli. We did not find evidence for a mediating role of asymmetry of frontal brain activity.

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Conflict of interest. The authors declare no conflict of interest

Ethical statement. Participants were fully informed and informed consent was provided prior to any procedures. The study was approved by the Research Ethics Committee and was conducted in accordance with the Declaration of Helsinki and its later amendments.

A.031 Interrelated factors contributing to abstinence or relapse after inpatient treatment

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Background. Patients with substance use disorders and co-occurring disorders, as well as those in socioeconomically disadvantaged positions, are known to have poorer treatment outcomes and higher relapse rates. Therefore, it is crucial to comprehend the factors that predict post-treatment substance use outcomes in these multimorbid populations. However, described factors are inconsistent and even contradictory. Outcomes may be difficult to accurately model using conventional statistical methods. The current study aims to fill a knowledge and methodological gap through qualitative comparative analysis (QCA). QCA is well-suited for exploring the various interrelated factors that contribute to abstinence or relapse after treatment, which will deepen our understanding of post-treatment substance use outcomes.

Setting and participants. Patients who underwent inpatient treatment with a Community Reinforcement Approach (CRA) based program of either 12 or 28 weeks were asked to complete questionnaires at baseline regarding their psychiatric comorbidity, intellectual disability, and social disintegration. Furthermore, they participated in a semi-structured interview by phone 3 months post-treatment and were asked about their daily activities, received formal and informal support, and substance use (abstinence or relapse). Treatment duration was also measured.

Method. QCA was used to assess necessary and sufficient causal conditions for abstinence and relapse. As is protocol, abstinence and relapse were analyzed separately. First, all individual cases were calibrated regarding their set-membership for the conditions and outcome, ranging from 0 (full non-membership) to 1 (full membership). We conducted necessity analyses to determine if there were any single conditions that were necessary for the outcome to occur, after which a truth table was constructed. This table displays all possible combinations of conditions and the corresponding outcome for each condition. Sufficiency analyses were then performed for both abstinence and relapse, to determine which conditions produce the outcome most of the time. Finally, the qualitative interview data were consulted to interpret our results. FsQCA 3.0. software was used.

Results. Informal support and post-treatment daily activities were associated with abstinence. Baseline and treatment conditions differed across the five solution terms for relapse, but post-treatment conditions were similar, with informal and formal support and activities being mostly absent.

Discussion. The study emphasizes the importance of post-treatment conditions such as informal support and daily activities in maintaining abstinence for individuals with substance use disorders (SUD). It also highlights the need to study factors predicting abstinence and relapse separately. The findings suggest that post-treatment conditions may be more accurate predictors of abstinence and relapse than baseline conditions alone, which has important implications for developing effective interventions and treatments for SUD.

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Conflict of interest. The authors declare no conflict of interest

Ethical statement. All procedures were in accordance with the Dutch legal ethical guidelines, as approved by the Medical Ethical Committee, Nijmegen, the Netherlands.

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A.032 The effects of tDCS on inhibitory control, are they mediated by frontal brain asymmetry?

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Background. Substance-related addictions have been associated with reduced inhibitory control, especially in reward contexts [1]. Previous studies suggested that Transcranial Direct Current Stimulation (tDCS), aimed at increasing right over left frontal brain activity enhances inhibitory control [2]. Indeed, asymmetry of frontal brain activity has been associated with changes in avoidance relative to approach tendencies [3]. However, it remains a question whether the effects of tDCS on inhibitory control are mediated by shifts in lateralization of frontal brain activity. In the study, we addressed this main question.

Methods. We employed a sham-controlled design and recruited 65 participants (19 men, 46 women, between 18–58 years old ($M = 24$, $SD = 6$)). Electrophysiological activity was recorded, and participants performed a stop signal task, which yields a relevant index of inhibitor control (stop signal reaction time), before and after the tDCS or sham intervention. tDCS consisted of 2mA anodal stimulation of F4 (right frontal region), relative to cathodal F3 (left frontal region) for 20 min.

Results. There was no consistent effect of tDCS on the relevant index of asymmetry of frontal brain activity (asymmetry of frontal alpha, 8–13 Hz, oscillatory activity). The study is ongoing, and additional results regarding the potential effect of tDCS on inhibitory control will be presented and discussed.

Conclusions. Though previous studies using the same or similar protocol show improvements of inhibitory control, we did not evidenced that such effects are mediated by shifts in asymmetry of frontal brain activity as indexed by frontal alpha asymmetry.

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Conflict of interest. The authors declare no conflict of interest.

Ethical statement. All participants were fully informed and provided their informed consent prior to any procedures. The study was approved by the Research Ethics Committee and was conducted in accordance with the Declaration of Helsinki and its later amendments.

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A.033 The relationship between mindfulness and behavioural and brain activity indices of inhibitory control

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Substance abuse has been associated with deficits in executive functions, including inhibitory control [1]. Hence, it is vital to understand those factors that contribute to improvements in inhibitory control. One such factor may be mindfulness. Specifically, studies have suggested that mindfulness is associated with enhanced inhibitory control [2], but recent studies suggest that the relationship may vary as a function of reward context [3]. In addition, the brain mechanisms that drive inhibitory enhancement has not yet been fully explored. Addressing these questions was the aim of the current study. In total, 65 participants (19 male, 46 female) between 19–58 years old ($M = 23.94$, $SD = 6.09$) performed a neutral and (palatable food) reward stop signal task (SST) while their electrophysiological brain activity was recorded via EEG. The task yields a behavioral measure of inhibitory control, the stop signal reaction time (SSRT). Relevant brain activity indices associated with different components of inhibitory control are the stop-signal associated right frontal N2 and frontocentral P3. We replicated these components in the current study and show that these vary as a function of stopping success. The project is ongoing, but preliminary results regarding the exact relationship between mindfulness and the aforementioned indices of inhibitory control will be presented, and its implications discussed.

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Conflict of interest. The authors declare no conflict of interest.

Ethical statement. All participants were fully informed and provided their informed consent prior to any procedures. The study was approved by the Research Ethics Committee and was conducted in accordance with the Declaration of Helsinki and its later amendments.

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A.034 Which scales measuring problematic internet use are best at predicting anxiety and depression symptoms in medical students?

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Background. Globally, depression affects one-third of medical students, whereas the prevalence of problematic internet use (PIU) among medical students is approximately five times higher than in the general population [1]. Evidence suggest that PIU contributes to anxiety and depression severity [2]. However, it is unclear which scales measuring PIU are better than others at predicting anxiety and depression severity.

Objective. The aim of this study was to evaluate the prognostic value of the Compulsive Internet Use Scale (CIUS), the Problematic Internet Use Questionnaire (PIUQ9) and a single question “whether internet use impairs daily functioning”, to predict depressive and anxiety symptoms in medical students.

Methods. Lithuanian medical students participated in two independent online surveys launched between December 2020 and February 2021 (Study 1, N=518 [21.4% men, mean age 23.6 ± 3.0 years]), and between May 2020 and June 2021 (Study 2, N=398 [16.3% men, mean age 23.0 ± 3.4 years]). The participants completed the CIUS [3] and answered question “Impairment to engage in daily activities and social life due to excessive internet use (NO/YES)” (Q_single, Study 1), PIUQ9 (Study 2) [4], the Patient Health Questionnaire (PHQ9) and the Generalized Anxiety Disorder Assessment (GAD7) (both studies) [2]. Block-wise linear regression analyses were performed to estimate the prognostic value of CIUS, PIUQ9 and Q_single on PHQ9 and GAD7 when controlling for gender, age and internet use time.

Results. Q_single resulted in increase in the coefficient of determination R^2 by 0.175 ($p < 0.001$), R^2 of the final model is 0.182, R^2 is 0.176 ($p < 0.001$), standardized coefficient $\beta = 0.420$ ($p < 0.001$), when predicting PHQ9, and its predictive influence was higher if compared to PIUQ9 (increase in R^2 0.110 ($p < 0.001$), R^2 0.128, R^2 0.120 ($p < 0.001$), $\beta = 0.350$ ($p < 0.001$)). CIUS also showed a larger influence in predicting PHQ9 increase in the coefficient of determination R^2 is 0.247 ($p < 0.001$), R^2 of the final model is 0.254 ($p < 0.001$), R^2 is 0.249 ($p < 0.001$), $\beta = 0.497$ ($p < 0.001$)) if compared to PIUQ9 (Study 2) and Q_single (Study 1).

Conclusions. The CIUS performs better than PIUQ9 or single question on function impairment due to PIU in predicting depressive and anxiety symptoms in medical students regardless of age, gender and internet use time. However, in short medical surveys one question item on functioning difficulties due to PIU could be recommended using as it predicts anxiety and depression symptoms relatively well.

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Conflict of interest. JGS serves as a consultant at FACITrans. In the past several years JB has been serving as a consultant to Cogstate, Ltd. The rest of the authors declare no commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical statement. Not applicable.

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A.035 The role of stigmatization in gambling disorder: A systematic review

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Background and aims. One of the key aspects in the study of gambling addiction and addiction in general, focuses on the social perceptions of the disorder and the stigma that exists around it. Often, it is the case, that the public stigma associated with the disorder can hinder the addict from acknowledging the problem and prevent them from seeking help. So far, studies have found that a negative stereotype involving people living with gambling addiction often causes their stigmatization and can significantly impede their motivation to look for treatment. Based on the above, we aimed to review the literature to examine the role of identity, self-stigma, and management of public stigma related to gambling disorder, and how this affects treatment-seeking behaviour.

Methods. We searched the peer-reviewed literature (PubMed, Web of Science, and Scopus) to identify studies examining the relationship between stigma and gambling. The study adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Results. Out of 301 papers, 31 met our inclusion criteria and were included in the review. Six main topics were identified: (i) gambling-related stigma in general; (ii) stigma consequences as a gambler in a minority group; (iii) stigma and attitudes of non-gamblers toward gamblers; (iv) stigma and attitudes of gamblers toward gambling; (v) stigma and barriers to treatments; (vi) stigma and identity management. The analysis of the studies showed that problem gamblers are socially stigmatised, and attract negative stereotypes, social distancing, and emotional reactions. Stigma affects more female gamblers and minority communities than male gamblers. Therefore, they experience more gambling-related harm but are less willing to seek help. However, individuals who had more positive attitudes towards gambling showed lower contempt and had more supportive attitudes.

Discussion & Conclusion. Addressing and reducing stigma towards gambling, especially among female and minority gamblers, could help to decrease gambling-related harm and encourage more individuals to seek help. Encouraging more positive attitudes towards gambling could also be beneficial in reducing stigma and promoting support for those struggling with gambling problems.

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Conflict of interest. The University of Gibraltar receives funding from the Gibraltar Gambling Care Foundation, an independent non-for-profit charity.

Ethical statement. Not applicable.

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A.036 Understanding esports-related betting and gambling: A systematic review of the literature

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Background and aims. Esports gambling has steadily grown in popularity alongside esports itself. While research has been increasing in the field of esports-related gambling, no study has yet systematically reviewed the relevant literature. Therefore, we aimed to comprehensively review all empirical research conducted in the wider field of esports gambling.

Methods. A systematic review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was undertaken using PsycINFO, PubMed, Scopus, and Web of Science databases. Only empirical studies were included and were also assessed for potential biases using the ROBUST guidelines.

Results. A total of 23 studies from nine countries were identified. Esports gamblers were found more likely to be young males, likely to score high on problematic gambling scales, and likely to belong to households speaking a non-English language at home in English speaking countries.

Conclusions. Esports gamblers are a unique type of gambling population, with somewhat dissimilar characteristics and behaviors compared to other types of gamblers. However, there is a need for wider research in this field to understand these populations, as well as a need for longitudinal research.

Funding sources. ZD's contribution was supported by the Hungarian National Research, Development and Innovation Office (KKP126835).

Conflict of interest. The University of Gibraltar receives funding from the Gibraltar Gambling Care Foundation, an independent non-for-profit charity. MDG's university has received research funding from Norsk Tipping (the gambling operator owned by the Norwegian Government). MDG has also received funding for a number of research projects in the area of gambling education for young people, social responsibility in gambling and gambling treatment from Gamble Aware (formerly the Responsible Gambling Trust), a charitable body which funds its research program based on donations from the gambling industry. MDG regularly undertakes consultancy for various gambling companies in the area of social responsibility in gambling. However, none of the above-listed funding is related to this research project, and the funding institutions/organisations had no role in the study design or the collection, analysis, and interpretation of the data.

Ethical statement. Not applicable.

A.037 Gambling when Facebook is down – a behavioural tracking data study

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Background. Although the importance of social media platforms in people's daily lives and their role in advertisement, and the persistent increase in online gambling participation over the years are unquestioned, no study has examined how the unavailability of social media affects online gambling. A 6-hour-long worldwide outage of Facebook on 4th October 2021 created a unique possibility to investigate this relationship.

Objectives. The aim of the present study was to examine whether online gambling behaviour during the Facebook outage was different from gambling patterns on other Monday evenings.

Methods. We analysed behavioural tracking data from an online gambling service provider, Fortuna Entertainment Group (FEG). The datasets included information on the gambling patterns of 232,037 players from five different countries (Croatia, Czechia, Poland, Romania, and Slovakia) on five consecutive Mondays, including the day of the Facebook outage. A linear regression was estimated for several outcome variables (number of players, amount of stake, number of bets) separately for each country and gaming and sports betting type of gambling, while gender, age, time, and date were included as control variables.

Results. Most of the ordinary least squares (OLS) regressions showed a non-significant impact of the outage, and only a few significant, but small differences were identified. In these cases, the outage was associated with a lower outcome.

Conclusion. In the case of the examined countries, the Facebook outage only had a marginal impact on gambling behaviour. Further research and analysis are needed to explore the connection between social media use and abstinence and gambling.

Funding sources. The University of Gibraltar receives funding from the Gibraltar GamblingCare Foundation.

Conflict of interest. None

Ethical Statement. The study protocol has been approved by the Research Ethics Committee at the University of Gibraltar (Ethics ID: 012/2021/UniGib).

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A.038 A Resting-State EEG Study and Psycho-Social Exploration of Young Adult Offspring of Alcohol-Dependent Parents

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A well-known risk-factor for developing an alcohol use disorder (AUD), a genetically complex illness with about 50% heritability, is being an offspring of a parent with AUD. First-degree relatives can inherit vulnerability to AUD both at the biological level (e.g., in spontaneous brain activity) and in association with high-risk psychosocial characteristics. So far, resting-state EEG studies in AUD and offspring are limited and have identified inconsistent differences in the power of the band frequencies theta, alpha, and beta. Research suggests more robustly higher risk in offspring for internalizing and externalizing disorders, self-regulatory difficulties, and interpersonal issues. The present study aims to evaluate the absolute power of theta, alpha, and beta in young adult offspring in comparison to participants with no family history of AUD; to explore psychosocial profiles of the offspring in contrast to those with no family history of AUD; as well as to explore a relationship between potential differences in the frequency bands and the psychosocial variables. For these objectives, a resting-state EEG recording was conducted with 31 young adult offspring of alcohol-dependent male parents and 43 participants with no family history of AUD (age 16–25 years old). In addition, the participants answered self-report questionnaires assessing anxiety and depressive symptoms, impulsivity, emotion regulation, and social involvement. The results suggest no differences in spontaneous brain activity between the offspring and the participants with no family history of AUD. Concerning psychosocial differences, the offspring displayed significantly lower social involvement. All in all, we cannot conclude that differences in resting band frequencies suggest vulnerability in offspring. The present investigation highlights the need for interventions to enhance social connection in offspring. This will not only reduce risk for AUD, as this disorder has been closely associated to increased feelings of loneliness, but improve overall wellbeing for offspring as well.

Keywords: resting-state, EEG, offspring, AUD, psycho-social.

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Conflict of interest. On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Statement. Experimental procedures and ethical guidelines were in accordance with approval from the institutional ethics review board (13/001).



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26th International Conference of European Association of Substance Abuse Research jointly organised with Lithuanian University of Health Sciences, Neuroscience Institute and Lithuanian Society of Biological Psychiatry

Public lectures - Behavioral Addictions: the role of research, evidence-based prevention, treatment and care

Location: M.K. Čiurlionis Museum of Art (Nacionalinis M. K. Čiurlionio dailės muziejus), V. Putvinskio g. 55, Kaunas, Lithuania

Date: 2023-05-12

Time: 13:30-16:30

Chairs: Vesta Steibliene and Julius Burkauskas

Organizers: Vesta Steibliene, Julius Burkauskas, Aurelija Podlipskyte, Vilma Liaugaudaite