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Conference case report

REVIEW OF THE APPLICATION OF EMDR THERAPY IN THE TREATMENT OF PATHOLOGICAL GAMBLING - CASE REPORT

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INTRODUCTION

Gambling is a phenomenon encountered in various forms in almost all cultures. Modern forms of gambling have expanded with the use of mechanical appliances and electronic devices and have crept into our communities and our homes. We distinguish between social, professional and pathological gambling. Social gambling is a culturally acceptable recreational activity that does not have a preoccupying character and does not cause serious negative consequences. It is often used as relaxation or entertainment. On the other hand, certain professionals deal with gambling as a life vocation. Professional gambling is performed by trained, skilled and disciplined people. However, there are people who cannot control their impulses for various reasons, so they fall into a serious problem known as pathological gambling. Pathological gambling is a psychosocial behavioral disorder that consists of frequent, recurrent episodes of gambling that dominate a person's life, as far as damaging social, work, material, and family values and obligations (Hasanović & Pajević 2018, 2019).

Gambling Disorder is a prevalent psychiatric condition often linked to dysfunction of cognitive domains regulating impulsive behavior. It is not clear whether cognitive deficits in Gambling Disorder extend to those with problem (at-risk) gambling. Ioannidis et al. (2019) in their meta-analysis indicates heightened impulsivity across a range of cognitive domains in Gambling Disorder.

Pathological gambling was accepted into DSM III as a mental disorder in 1980. In the tenth revision of the International Classification of Diseases (ICD-10), pathological gambling is classified as an impulse control disorder. An impulse control disorder is defined as the inability to refrain from acting on an impulse that is dangerous to others or to the individual, and it is usually associated with the expectation of pleasure during and after gambling activity. The person has an increasingly pronounced feeling of tension or excitement before the act of gambling, and feels pleasure, satisfaction or relief during the act of gambling and while awaiting the results of a bet. Conversely, he or she may feel regret, self-reproach and guilt when material goods and time are lost and life activities are neglected.

In the latest classification by the American Psychiatric Association (APA), the fifth revision of the Diagnostic and Statistical Manual (DSM-5) radically changed the attitude towards pathological gambling. The disorder is no longer referred to as pathological gambling but as gambling addiction (Bećirović & Pajević 2020).

The etiology of this non-substance (behavioral) addiction is a combination of biological (genetic predisposition), psychological and social elements. There is a familial predisposition to this disorder. Underlying addictive behavior is the urge to seek excitement and reduce tension. They are triggered by an emotion or event, e.g. worry, tension, anxiety, loneliness, depression, dissatisfaction. In anxious, passive-aggressive individuals, the urge can be triggered by feelings of inferiority, guilt, low self-esteem and a lack of acceptance of responsibility for their own behavior (Džeba 2018).

To review the scientific literature examining gambling behavior in military veterans in order to summarize factors associated with gambling behavior in this population Levy & Tracy (2018) had searched databases to identify articles specifically examining gambling behavior in military veterans. Their results identified 52 articles (1983-2017) examining gambling behavior in veteran populations. Results from reviewed articles have provided an excellent foundation to inform potential screening, intervention and research activities going forward. The authors suggest that a public health approach to future research endeavors would strengthen the evidence base regarding gambling in veteran populations and better inform strategies for screening, prevention and treatment (Levy & Ttracy 2018).

Eye Movement Desensitization Reprocessing (EMDR) is a relatively new therapeutic method (Shapiro 1995) that has produced good results for people with post-traumatic stress disorder (PTSD) and other anxiety disorders. EMDR is a clinical treatment method developed to promote adaptive information processing (AIP) in the central nervous system disrupted by trauma experiences (Hasanović et al. 2018, 2021). Henry (1996) tested how effective EMDR treatment is to reduce gambling among pathological gamblers. Gambling refers to any special gambling activity (i.e. the purchase

of a lottery, a video poker session, a casino session and the use of gambling machines). Pathological gamblers have been hypothesized to be appropriate candidates for treatment with the EMDR protocol because of the potential existence of unresolved anxiety associated with trauma that may trigger pathological gambling behavior. Pathological gambling can be a way for anxious individuals to cope with, and try to control, their anxiety. The sample of 22 patients met the DSM-IV criteria for pathological gambling and had a history of trauma suitable for EMDR treatment. A group treated with EMDR and a control group were created by random sampling. There were no significant differences in the average frequency of gambling activities between these two groups before the intervention. The EMDR treatment group had psychotherapy before and after their treatment, while patients from the control group received cognitive psychotherapy while waiting for EMDR treatment. The EMDR treatment focused on life events, not gambling-specific events. This study found that among pathological gamblers, EMDR was effective in significantly reducing the mean incidence of gambling activities. In addition, EMDR was significantly more effective at reducing the frequency of gambling than cognitive psychotherapy. EMDR was more effective among patients who had a history of trauma. Henry suggests that these preliminary findings support an etiological model based on anxiety for gambling disorders (1996). Nevertheless, EMDR treatment for pathological gambling should be further investigated and alternative explanations for these results should be considered. In particular, the variability of time in therapy prior to EMDR in this study may indicate that longer retention in treatment and commitment to change may lead to a more successful treatment outcome (Bae et al. 2015).

Gambling disorder damages psychophysical health, reduces ability to work, changes the gambler's personality, and affects both the individual and his family, as well as the wider community.

The aim of this case report is to demonstrate the efficacy and effects of EMDR application in working with a pathological gambler.

CASE REPORT

The patient is a married high school teacher whose wife is also a schoolteacher, and they have a son and daughters who have grown up but are not married. The patient was brought by ambulance to the on-duty psychiatric clinic accompanied by a nurse. It was a voluntary admission. He presented as depressed, agitated and verbalized suicidal intentions. He stated that he has been gambling for ten years. He gambled about 155,000 KM (Bosnian Marks). Seven days before coming to the clinic, he took out a loan of 8000 KM, with which he paid his debts. He begged for help. He heard the neuropsychiatrist, whom he begged to send him for treatment at our clinic, say “go on, you will kill yourself anyway” as the patient was leaving his office. He complained that he suffered from insomnia and nightmares in which he saw himself as another person (another myself) who stabs a knife in someone’s neck and does not let him to prevent and stop the bleeding. He was waking up in sweat and had to change his clothes and bedding.

His mental illness began in 1991. It reoccurred in 2004. He had been treated in hospital and as an outpatient. Three years ago, he sought help from a competent neuropsychiatrist, was sent to a psychologist, and was treated briefly. He noted that he was dissatisfied with the attitude of the neuropsychiatrist, whom he blames for not referring him for treatment for gambling, even though he had asked for it.

In the meantime, he had an attack of renal colic. He was also treated by an internist for a stabbing sensation in the chest, which felt tight when he walked and made him stop because he loses his breath. Investigations showed an enlarged prostate. He had an allergy around his neck, allegedly from probiotics or Helicobacter pylori, as the internist told him. Positive markers of hepatitis B have been detected since 2016.

This was the patient's (55 years old) fourth hospitalization in psychiatry. The first was in 1991 in Sarajevo at the Psychiatric Clinic, treated as Borderline Disorder, then at the Clinic for Psychiatry in Tuzla in 2008 for attempting suicide by taking pills. He had a severe depressive episode and anxiety disorder. The third hospitalization was at the day hospital of our Clinic from December 2008 to January 2009. He was recommended to continue treatment with an analytical group and joined the group sessions five times, but then left it.

The patient was born the fifth child and being the youngest, he has four sisters. Early psychomotor development went smoothly. His father was an alcoholic, family conflicts were frequent, and his father would beat his mother. He and his sisters witnessed frequent domestic violence. He was an excellent student at school, finished two high schools, later graduated as a manager and then became a traffic technician and category B driving instructor. He regularly served in the Yugoslav People's Army. He worked as a chef at a school and at a construction company where he was the head chef. After that, he worked in high school for 22 years as a professor of nutrition and culinary science. During the war he was excused from the frontline and worked in civil protection. He had not smoked until 2004 and has smoked a pack of cigarettes since then and up to four packs in the last seven days. He does not consume alcohol. He was politically engaged in the past, but is not any longer. His father died at the age of 56 and his mother at the age of 69. He had a difficult childhood. They now live in their own comfortable house. He has a monthly income of around 950 KM.

He is being treated at the clinic with complex psychopharmacotherapy and is involved in psychotherapy groups and in ecopsychiatry, but his sleep is still poor and he expresses uncertainty about the continuation of his life after leaving the clinic. His son and his brother-in-law condemn him. An individual interview was conducted with the patient. He had nightmares in which he was accused of the catastrophe he had caused by his gambling. He thinks he was wrong not to listen to his daughter who called him to religious behavior. He expresses regret because he used to have an orderly life. His mother's death is the hardest for him. The patient was called again for an individual interview in the office. He gave an account of his treatment at the day hospital when he did not admit to gambling. He was diagnosed with hepatitis two and a half years ago and has been treated for pancreatitis. He has lost the trust of his son and wife. He has not slept in the marital bed for the last 3.5 years. He has a crushing feeling in his head at night. He has lost potency. He faced disruption at the end of the school year. His son and wife do not visit him, but his daughter and sisters do. He is beating himself up for what he has done. His mother died in his arms on the 17th of December 2004 at the admissions department of the internal medicine clinic where she was given an ECG at 2 o'clock in the morning. Before that, in 1988, she had one of her breasts removed in a Zagreb hospital. His father, whose alcoholism caused the patient to have a difficult childhood, died due to a "doctor's professional mistake". His father vomited for six days and was treated at the psychiatric hospital in Sarajevo. The patient served in a special unit during the war.

During her visits, his daughter would ask him to repent and turn to the spiritual life. He was anxious about going back to work with his students and colleagues. His daughter was afraid that after leaving the clinic he would continue to gamble because that is what he had always done. He agreed to stay longer to continue treatment. We decided to use EMDR. Various forms of alternating bilateral stimulation are used in EMDR. Bilateral stimulation was achieved by tapping the palms with a rubber tendon hammer. The patient was told what to expect from the process and the first session was carried out.

Verbatim of the first session

Therapist (T): When you think about it, why did you decide to stay in the hospital for a few more days?

Patient (P): I think I did the right thing. I saw my daughter yesterday. She is with me, but there is someone close to her who is putting pressure on her.

T: Who is that?

P: My wife and her family. My sisters always told me to get treated. Allah has sent me into your hands to heal me. Since I saw you on TV last year, I've been talking about you.

T: Why? What was that?

P: I found myself in your vicinity. I wanted someone to support me. My family doesn't understand me.

T: Why didn't you come here before? What was stopping you?

P: Something prevented me.

T: When you think about gambling, what makes you want to enter the casino and stay there?

P: I come in with 50 BAM (Bosnia and Herzegovina currency). I spin it 5 times and I earn 500 BAM. And then I move on. Money is no longer on my mind, it has no more value to me. The casino becomes a place to relax, like a meditation.

T: What was the most enjoyable moment for you?

P: It's never been nice for me.

T: When is it ever nice?

P: When I come in with money.

T: Tell me about your last visit to the casino. Imagine that scene as you enter with money and be aware of that pleasant feeling in your soul and your body that you have now.

BLS

P: I went home. In my pocket, I had one-third of the loan I took out. I thought that this time I would be able to repay what I had already spent from that loan. At the same time I was thinking that I should go home and tell my wife about everything that was happening. But I still went to the casino. I turned on 2 machines, put a chip on one 2 KM, 1 KM on another... and soon I had spent all the money I had.

T: How much money?

P: About 2200 KM - as much as I had with me. I lost it. I was so confused and explosive… I had lots of charge in me. I was not aggressive towards anyone. I was thinking... In those days I smoked 3-5 packs of cigarettes a day... all the way up until I took that loan. And then I lost my strength. I got sick. I went home, thinking about what to do next. On the way home, a neighbor followed me because he thought I wanted to do something to myself. He drove me to the health center. I explained everything in the emergency room. My whole problem. I got some therapy. And then the ambulance came and drove me to where I was. God sent me here. I used to lie that I was coming to you. My daughter used to come over the holidays and persuade me to go to the doctor. I don't know why I didn't. I was doing something... painting sheds, I distracted myself by painting sheds. I was trying to solve my problem that way. I gave my ID card and my credit card to my daughter so that I wouldn't get into more debt. When I went to a store to buy my son shoes, I took my daughter's ID... but then I abused it. I took the opportunity of having a personal ID, went to the bank and filled out the papers for a loan. I didn't tell anyone. And at home I made a list of what I would do with the money I raised: buy my son a car... but nothing… When it all happened, my son came, and

when I told him everything, he got angry, sold his car "Golf 4", his son had some extra money somewhere and bought a "Golf 5". He said: "when my father comes from the hospital, let him look at the car, let him see how much money he has spent". And I ask myself what I was doing. I wasn't a believer... I fasted during the war.... later I didn't, but I could have. If I hadn't, this wouldn't have happened. I wouldn't have gotten hepatitis, high blood pressure. I am aware... but I could not have achieved this alone, not even in the day hospital. Your time is precious; I have come into the right hands for help. I think that I have found help for me and that me, the "new self", will return home strong. I know I have to talk to my family too. I know they want harmony, love. I also know there are people who want to influence me. But I will show by my actions that I am the old me. I used to help everyone, everywhere. I even feed animals; they also have a soul.

BLS

T: What did you notice?

P: It's like I'm 15 kg lighter. Such a feeling. I feel no pressure or anything. Full body relief.

T: Let's go back to the trauma with your mother. How did your mother die?

Q: She got galloping sepsis. I drove her and her sister to the intern. She had previously had a sore throat that was being treated. I drove her with my sister. Her hands were giving out. At 6 o'clock she died in our arms, mine and my sister's - 17.12.2004. In the meantime, the school where I worked was conducting an investigation against the principals and those responsible for the finances. When I came to that school, the head of finance asked me to sign travel orders. I didn't even know what that was then. Those travel orders said Celje, Maribor... but I didn't go anywhere.

T: Then why did you sign it?

P: Because you can't get paid if you don't sign. He also wrote that I lived in Tuzla, and he collected money for the rent. It was written as if I was also buying some cigarettes, boxes of cigarettes. I didn't do it; I didn't even smoke. I realized that the director also signed it. At that time, I was also involved in politics. An investigation had been launched... they took away everything that was ours in the office at school, in the car...

T: Why is this lawsuit important to you? I didn't ask you that.

P: On the day of my mother's death, an indictment was filed against the school principal and against me.

T: What did you experience that day?

P: I experienced.... Neighbors bought newspapers, wrote about me, about the indictment...

T: What do you think about yourself when you think of that day?

P: Now it doesn't bother me... When I remember that day… Then it was the funeral...

T: When you remember that picture, what is the hardest moment for you... When you put your mother in the grave?

P: Putting my mother in the grave. I put my father down too, but this was harder. I don't think I dealt with that very well.

T: Remember the picture when you put your mother down. What does that make you feel?

P: That I am a loser.

T: Don't think about that. What would you like to believe about yourself positively?

P: I would like to believe that I am a being like all other beings.

T: How true does that seem to you right now, from 1-7? 7 is most true and 1 is a lie.

P: 5 and stronger.

T: When you say loser, you remember your mother coming down to the grave. What emotion do you feel then?

P: Now I feel like she didn't die. That she moved. I feel discomfort. I will never get rid of it.

T: How severe is this problem from 0-10?

P: I can't get rid of it. Maybe 7.

T: Return to the picture of your mother being lowered into the grave.

BLS

The patient talks during BLS.

P: I'm lowering her into the grave. There is another funeral at the same time. A little further away. Another woman. They knew each other well. My mother died on Friday and she died on Saturday. She knew my mother had died. But they were destined to be buried together. I saw many people at both funerals. It was winter, snow. I wasn't cold. I was in a black coat. I tried to walk to the funeral, but they put me in a car. I couldn't cry. I was also given some kind of injection. I know how my mother fed me, how she fought for us. I remember the faces that were at the funeral. They asked me if I needed help. Even today I remember those neighbors... may Allah reward them. .to do good to them... some are alive, some have died. When I put my mother down, they asked me... She wanted to bury herself on a pillow. I respected everything. When I put her down - for me it was the hardest moment of my life. I also put my father down at another cemetery. She didn't want to go there. But the pain was stronger for my mother. When I put her down I thought I was going to get sick. But I was aware of everything. I started arranging the boards ... I was standing... I didn't see anything, just where I was putting her down. I felt sadness, pain... pain... from my soul. That the most.

T: Why is it related to gambling?

P: I didn't run there right away.

T: Why is the fact that you put your mother down related to gambling?

P: I thought everyone was looking at me because of the indictment. I had no other defense mechanism. The indictment ... lost my mother ... I knew what it was like to be investigated, to go to court. I knew what it was like. I found myself there. I hadn't walked into a casino before. That's where I ran away from people. The first time I walked in I felt peace, my own corner. In the beginning I had money, and that's how it started. I also hoped to get some money, but no one gets anything there. ... There's no money in that.

After BLS

T: What did you notice?

P: Like a bird. Relief in my head. No burden.

T: Now that you remember the time you put your mother down?

P: I can handle that now, 7.

After eye movement.

T: How do you feel now?

P: I can see more clearly.

T: Close your eyes. Imagine light entering your body, passing through your lungs, heart, spleen... It illuminates you all over. Is there any place in your body where you feel discomfort? Does anything bother you anywhere?

P: No

T: What do you think about yourself now?

P: I can handle everything. I feel the light in my eyes.

After this session, the patient slept well, was in a good mood and was communicative. He wanted to go home but was afraid of the reactions from his community.

Second session, six days after the first

T: What are you most afraid of when you think about your return to school? What awaits you there?

P: People who ask me where I've been ... and I repeat like a parrot. I have to be careful what I say. Those who have asked me before "are you chasing a pension?" will be waiting for me in front of cafes. And I told them I didn't take anything from the state and left.

T: When you get back to school, what are you most afraid of? What is the worst that could happen?

P: Provocations.

T: Imagine a scene of your return to school and feel that discomfort as people provoke you.

BLS

The patient talks while tapping his palms with his eyes closed.

P: They can say, "That one from that hospital is back." But I will survive this. They can also say: "you are an idiot". I will say: "fine, you are a professor and mind your business". No one should judge anybody except a doctor. And I wouldn't comment on anything any further. I went to get treated. I could also keep quiet; others can get provoked if they want to. I will not provoke anyone. I will avoid those verbal duels. I'll be like I was in the hospital – standing firm. I haven't done anything wrong. I can go with my head held high. They are already asking at school when I will return. Colleagues ask, but I take it with a grain of salt. They are all in cliques in that school. We have an unhealthy environment. We have no etiquette, no culture. It's a backward place. The teachers are like that as well. I came here to be treated - but I'm also now learning how to be confident. I am confident that I can handle it. Talking to you and your advice helps me. It comes to me as a guide as to how to behave. There will be that at work. But I have my own office, I don't have to go to the staff room right away. And I don't have to be accountable to anyone. I will behave sensibly. I will not run into or enter conflicts. And people love to gossip. Very few people are your friend in life.

After BLS (opened eyes)

T: What did you notice?

P: Everything I said ... everything is light to me. I feel a lot lighter.

BLS

T: Let's go back to the feeling that everything will be fine. Imagine yourself coming back ... when you imagine yourself in that situation ... Close your eyes, scan your body, check your eyes, your throat ... Is there any place in your body where you feel discomfort?

P: There is nothing. I know exactly where every part of the body is, I can feel it.

BLS slow eye movements

T: What are you noticing now?

Q: Relief in the head ... relaxation.

The patient went to his room and slept very well that night. His son came to visit, he reconciled with his father and they talked nicely. He was discharged from the Clinic.

The patient now comes weekly to group psychotherapy. He is communicative, assertive, in a good mood, full of empathy for, and supportive to, other patients. There is familial harmony in his house, and he is performing well at work with students and colleagues. He walks freely with his wife in the bazaar and drinks coffee in restaurants in public.

DISCUSSION

Our case report shows that a strong internal or external stressor can turn social gambling into a gambling addiction. In this case, the stressors would be the simultaneous occurrence of the sudden death of his mother and his unjust indictment. As a war veteran who served in a special unit and later as a successful citizen politically engaged and as the professor in secondary school, he had a hard time withstanding public embarrassment through the newspapers when the school principal accused him of a crime he did not commit (Levy & Tracy 2018).

Gambling addiction is more common in men, and differences in gambling patterns have been observed. Men gamble more often in groups, and women alone. Gambling can be regular or episodic, and the course of the disorder is progressive, as in this case. Over time, the frequency of gambling increases, but so do the stakes. Seeking action and excitement is more important than money itself. When gambling reaches the level of addiction, the person significantly changes their behavior. There is a tendency towards distorted thinking, denial and superstition. Paradoxically, the more he loses, the more confident he is in a "safe win" and the fact that his luck will change. This leads to growing financial problems - debts, sale of property, difficulties in repaying loans and extortion of money from family members. Family and partner relationships are disrupted. There is marital dysfunction, inadequate parenting, and even family breakdown. Wives often suffer from depression, headaches, indigestion and insomnia, and children are more likely to suffer from stress-related diseases, such as asthma, allergies and indigestion. There are also problems in the workplace due to difficulty concentrating, absences from work, borrowing money from colleagues or reduced performance (Džeba 2018).

As with other addictions, gambling addicts do not admit that they have a problem and do not accept help for a long time. They apply for treatment when large debts have already arisen, when they are unable to repay loans, or after a job loss or divorce. Treatment involves a specialized and structured program that includes individual psychotherapy, pharmacotherapy and group psychotherapy programs with self-help methods (anonymous gamblers, gambling counseling, parent groups, support groups and e-counseling). In our example, stigma prevented our patient from seeking help when he was treated at the day hospital. However, when he began to suffer somatically, and when he became suicidal, treatment by a neuropsychiatrist caused him to get worse and lose confidence in doctors.

Psychodynamic psychotherapy aims to gain insight into one's own behavior and to accept new patterns of behavior. Cognitive-behavioral therapy aims to change misconceptions and incorrect perceptions such as: "he who does not play does not win," and "everyone who plays will eventually win".

No drug has yet been registered for gambling addiction, however, due to comorbid disorders, psychopharmacotherapy is often required, as in our case.

It is advisable for the addict to continue his life surrounded by his family, but also to be actively involved in an organized treatment program. Part of the program includes control of financial transactions, credit benefits, card ownership, etc. It is necessary to educate the family, possibly involving the social services in order to settle debts. The goal is to stabilize the situation and to establish abstinence with psychosocial protection from new debts.

Given that pathological gambling has an adverse effect on one's family and society, that the first signs of gambling behavior are being recognized at an increasingly younger age, and that the number of gambling addicts is rising, preventive activities should be aimed at adolescents and geared towards raising public awareness of the problem (Džeba 2018).

The inability to settle debts, when the material reserves of family and friends are depleted, drives pathological gamblers towards fraud and theft, which in turn leads to problems with the law. Physical health is impaired as chronic headaches, chest pain, sleep disorders and cardiovascular diseases arise. Moreover, depression in gambling addicts is two to four times more common than in healthy individuals, and the suicide rate is also much higher than it is in the general population.

In Henry's (1996) study of 22 subjects who meet DSM IV criteria for Pathological Gambling (PG) tests a theory that the development of PG lies in the existence of unresolved trauma-related anxiety, similar to Post Traumatic Stress Disorder, and predicts that reduction of that anxiety will result in reduced pathological gambling behavior. The study compares the effect on gambling event frequency of Eye Movement Desensitization and Reprocessing (EMDR) therapy with cognitive therapy to that of cognitive therapy alone for subjects with and without reported trauma history. Results are significant for pre- vs post-EMDR ($p=0.04$), for those with reported trauma history, ($p=0.01$) and when controlled for frequency of sessions and time in therapy prior to the treatment ($p=0.04$). Findings support an anxiety-based model for the etiology of PG behavior. While EMDR treatment for pathological gambling should be further investigated, alternative explanations for these results should be considered. In particular, the variability of time in therapy prior to EMDR in this study may indicate that simply staying in treatment longer and committing to change may lead to a successful treatment outcome (Henry 1996).

Bae H, Han C & Kim D (2015) published the case series introducing the desensitization of triggers and urge reprocessing (DeTUR), as a promising adjunctive therapy in addition to comprehensive treatment package for pathological gambling. After treatment, self-reported gambling symptoms, depression, anxiety, and impulsiveness were all improved, and all the participants reported satisfaction with the therapy. They were followed up for 6 months and all maintained their abstinence from gambling and their symptomatic improvements. Given the efficiency (i.e., brevity and efficacy) of the treatment, a controlled study to confirm the effects of the DeTUR on pathological gambling would be justified.

The meta-analysis of Ioannidis et al. (2019) indicates heightened impulsivity across a range of cognitive domains in Gambling Disorder. Decision-making impulsivity may extend to problem (at-risk) gambling, but further studies are needed to confirm such a candidate cognitive vulnerability markers.

CONCLUSION

The use of EMDR in the treatment of pathological gambling has been shown to be effective in overcoming accumulated psychological, cognitive and behavioral problems and psychosocial dysfunction. Given the efficiency of the EMDR treatment, demands further controlled studies to confirm the effects of the desensitization of triggers and urge reprocessing (DeTUR) on pathological gambling. Also decision-making impulsivity may extend to problem (at-risk) gambling, but further studies are needed to confirm such a candidate cognitive vulnerability markers.

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Contribution of individual authors:

Mevludin Hasanović: conception and design of the manuscript and interpretation of data, literature searches and analyses, evaluations, manuscript preparation and writing the paper;

Almerisa Tufekčić: made substantial contributions to conception and design, manuscript preparation and writing the paper participated in revising the article and gave final approval of the version to be submitted;

Zoe Oakley: made substantial contributions to conception and design, manuscript preparation and writing the paper participated in revising the article and gave final approval of the version to be submitted;

Muhammed Hasanović: made substantial contributions to conception and design, literature searches and analyses, manuscript preparation and writing the paper; participated in revising the article and gave final approval of the version to be submitted.

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