Cognitive-Behavioral Therapy for Internet Gaming Disorder and Alcohol Use Disorder- A Case Report

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Abstract: Internet gaming disorder is a behavioral addiction integrated in the category of "specific Internet addictions", due to its particular focus on the online gaming behaviors and related cues. A high rate of co-morbidity is reported in cases of various types of Internet addictions, which implies a thoroughly conducted anamnesis is necessary. DSM-5 presents a set of diagnosis criteria, but Internet gaming disorder is only a provisional entity that requires further research. Multiple scales have been developed for the purpose of measuring the severity of this addiction, most of them being based on DSM-5 criteria. Cognitive-behavioral therapy has been successfully applied in different drug-induced disorders with good results, therefore extending this psychotherapy administration range to behavioral addictions seems granted by their common pathophysiology. The case of a young adult diagnosed with both Internet gaming disorder and alcohol use disorder is analyzed using the cognitive-behavioral paradigm. The psychotherapy applied in this case was a structured 10-week, by-weekly sessions, cognitive restructuring- and coping skills- focused approach. Time spent on Internet gaming decreased with 50%, Internet Gaming Disorder Scale- Short Form (IGDS-SF) score was lower with 45%, Alcohol Use Disorders Identification Test (AUDIT) score decreased with 33%, and Global Assessment of Functioning Scale (GAF) also reduced with 65% after 10 weeks. A follow-up at week 20 recorded an increase in the alcohol use, but not in the Internet gaming behavior. The monitorisation of patients with multiple addictions (behavioral and/or drug-related) is necessary throughout the duration of treatment, but also after ending the structured psychotherapy, with frequent follow-ups, due to the high risk for relapse.

Key-Words: Internet gaming disorder, alcohol dependence, functional impairment, cognitive-behavioral therapy, individual psychotherapy, behavioral addictions, cognitive restructuring

1 Introduction

Internet use gradually became a custom in the life of many people, and its accessibility makes it easy for almost any cultural, age or professional group to spend time online. It has been estimated that in the last 15 years the number of people who navigate on Internet has increased by more than 10 times [1].

Internet gaming disorder is a type of behavioral addiction included in the latest edition of Diagnostic and Statistical Manual of Mental Disorders, in the category "Conditions for further study" [2]. A set of 9 clinical criteria has been defined and the duration of 12 months is considered necessary for the diagnostic [2]. Clinical features are similar to drug-induced dependence, and contain references to withdrawal, tolerance, and functional impairments.

In a large (n=11,003) German adolescents survey, that used a structured questionnaire, 1.16% of responders were diagnosed with Internet gaming

disorder according to the DSM-5 criteria, and the most frequently reported psychological features in this group were "escape negative mood" and "preoccupation" [3].

In Korean students, a survey (n=2,024) using the same DSM-5 criteria detected 5.9% of the studied population as suffering from Internet gaming disorder (10.4% male, and 1.2% female), while 8% (14.2% male, 5.9% female) of the sample was considered as presenting "high risk" for Internet gaming disorder [4]. The most frequently reported symptoms in Korean adolescents were "mood modification", "behavioral salience", "conflict", "withdrawal", and "relapse" [4].

Pathological Internet use has been associated with high rates of co-morbidity, and according to a systematic review, the most frequently reported associations were between Internet addiction and depression (75% of the reviewed reports), anxiety (57%), attention

deficit/hyperactivity disorder (100%), obsessive-compulsive disorder (60%), hostility/aggression (66%) [5].

Another review of the literature found important associations between Internet addiction and substance use disorder, attention deficit/hyperactivity disorder, depression, hostility, and social anxiety disorder [6].

Due to the high rates of co-morbidity in patients with Internet addiction, a thorough evaluation of the clinical status during the initial interview seems granted.

An early detection of any co-morbid condition could have significant impact over treatment plan formulation, disorder's evolution and prognosis. For this reason, a close monitoring of the patient's clinical status is necessary throughout the duration of the treatment, as the possibility of over-looking a psychiatric co-morbidity during the initial evaluation is not negligible.

A range of psychometric instruments have been created with the purpose of measuring the severity of Internet gaming disorder. Internet Gaming Disorder Scale- Short Form (IGDS-SF) is a 9-item, one-factorial instrument with satisfactory validity and reliability, based on DSM-5 criteria, and presented a consistent relation with the well-being measures [7].

Motives for Online Gaming Questionnaire (MOGQ) is based on the need to operationalize the motivational basis of online gaming [8]. Seven factors related to motivation -social, escape, competition, coping, skill development, fantasy, and recreation- were distributed in 27 items, scored from 1 (almost never/never) to 5 (almost always/always).

Gaming Addiction Scale for Adolescents (GAS) has a two-factor structure, and measures both engagement in the addictive behaviour (gaming) and problems related to video games [9].

A more focused approach for the differentiation of problem gamers and addicted gamers included only 4 core criteria (CORE 4 approach) from the original 7 items GAS [9].

Behavioral Addiction Measure-Video Gaming (BAM-VG) has a two-factor structure (impaired control and negative consequences), demonstrated good internal consistency, and also one month test-retest reliability [10].

BAM-VG scores correlated with time spent playing, self-identification of video game problems, and scores on other instruments, like DSM-5 IGD [10].

2 Objective

To improve the overall clinical and functional status in a case of Internet gaming disorder and alcohol-use disorder using cognitive-behavioural therapy.

3 Methods

The main outcomes were self-reported time spent in Internet gaming behaviors, IGDS-SF score, and Alcohol Use Disorders Identification Test (AUDIT) score. The secondary outcome was the improvement on the Global Assessment of Functioning Scale (GAF).

Clinical oriented observation and self-observation were used as main clinical methods for obtaining data in this case. Structured data regarding patients' functionality and primary variables were also collected from caregivers or family members.

Cognitive- behavioural therapy (CBT) oriented techniques were applied during the 10 sessions of therapy, with bi-weekly sessions, using mainly cognitive restructuring with a daily register of automatic thoughts that triggered problematic behaviours.

Thoughts-emotions-behaviours relations were analysed and alternatives for automatic thoughts were identified. Coping skills techniques using role-play were practised in areas where deficits have been identified, as gaming behaviour was perceived as a refuge from the real world or a substitute for real relationships.

Relaxation techniques were also taught, based on the fact that impulsive behaviours pattern needs to be disrupted by respiration- and muscular-oriented relaxation.

Attention-switch methods and daily programming of activities were also presented to our patient as ways of changing focus from addiction-related cues to other, not gaming/Internet-related stimuli.

4 Case presentation

The patient was 24-year old, male, student, single, currently living with his parents, who financially support him.

The initial psychiatric interview detected a history of alcohol dependence with onset at age of 20. The patient reported a mean of 16 drinks weekly for most days, each year for the last 4 years. He also reported an occasional administration of marijuana and benzodiazepines, but not enough criteria for dependence have been met.

Internet gaming disorder was preceded by a 6-month gambling disorder (poker and black-jack) with significant financial losses, due to which he had serious conflicts with his family. He didn't want to participate in any kind of psychotherapy, and received fluoxetine 40 mg q.d., but therapeutic adherence was not good.

During the initial interview, features of avoidant personality (although not enough for a DSM-5 diagnosis) were detected.

At baseline, the subject reported a mean of 7 hours spent daily for on-line gaming, with negative academic consequences, and his grades have dropped with more than 30% during the last year. This Internet gaming addictive behavior had its onset 18 months ago, with a gradually progression as the number of hours spent daily in gaming activities increased from a mean of 2 hours/day, mostly solitary gaming, to 7 hours/day, mostly network-based gaming.

The patient reported a sense of losing control over his gaming related activities about 12 months ago. The problems with his family and friends, focused on excessive gaming-related activities, appeared in the last year, because he gradually began to neglect his duties around the house, his academic activities (marked absenteeism, low grades), he separated from his girlfriend, and he also lost the majority of his non-gaming friends.

The alcohol use is perceived by the subject as necessary to induce a state of relaxation adequate for coping with gaming-related stress ("I feel like without a beer or a glass of wine I can't focus enough, and I perform poor in the games").

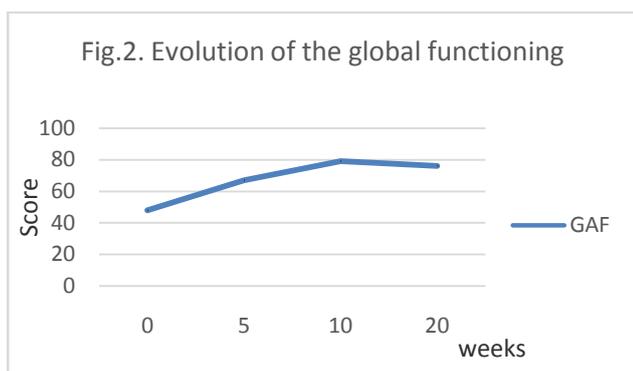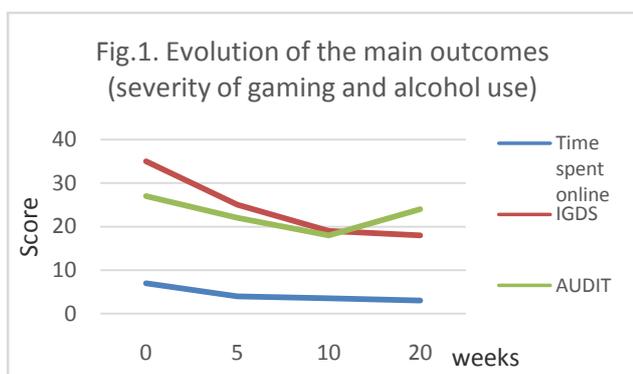**Table 1. Demographic and pathology -related characteristics at the initial visit**

Characteristics	Value	Observations
Age	24-year old	This pathology is frequently reported in young adults, so our patient is within the most reported age interval
Gender	Male	No sex ratio is reported in literature regarding Internet gamers
Occupation	Student	Academic performance could be severely impacted by gaming disorder
Marital status	Single	Relationships could be severely invalidated by the time spent on Internet for gaming
Comorbidities	one comorbid disorder - alcohol dependence	Other behavioural or substance-related addictions could be observed in Internet gamers
Time spent in gambling/day	7 hours/day (range 5-10 hours)	Time spent in gaming is the main problem for these subjects
Impact over daily functioning	Lower academic efficacy, conflicts with family members and friends, break-up with his girlfriend	Negative impact over daily functioning is one of the core criteria for defining behavioural addictions, and for differentiating pathological gamers from occasional Internet gamers
History of Internet gambling	1.5 years	Patients often require a long time before presenting to the therapist, and the family is one of the most important motivational factors for a behavioural change, as reported by

		patients
Mean age at problematic gaming behaviour onset	22.5 years old	

The involvement of this patient in the therapy program was perceived as relatively good, by both therapist and patient's family. He participated in all the 20 sessions that were initially established, and he has done his homework in 70% of cases.

Time spent on Internet gaming decreased with 50%, IGDS-SF score was lower with 45%, Alcohol Use Disorders Identification Test (AUDIT) score decreased with 33%, and Global Assessment of Functioning Scale (GAF) also reduced with 65% after 10 weeks (Fig.1-2).

Fig.1. Evolution of the main outcomes (severity of gaming and alcohol use)

Fig.2. Evolution of the global functioning

A follow-up at week 20 recorded an increase in the alcohol use, but not in the Internet gaming behavior.

The evolution of the Internet gaming disorder core symptoms was favorable, on all the clinical dimensions that were monitored. Time spent online for gaming activities decreased, and the functional consequences improved as a consequence of more time spent in other, non-gaming related, activities.

Data regarding the time spent online were derived from patient's diary, but also from his caregivers, who also observed an improved in the patient's overall mood and behavior.

CBT techniques focused on daily programming of activities were perceived as useful by the patient, who gradually re-gained his interests in dating and going out with his friends. Daily duration of the online gaming was limited to 2 hours, and attention-switch methods were taught for moments when giving up to gaming was perceived as difficult by the patient. Also, a diary with cognitive, emotional, and behavioral columns used for cognitive restructuring registered automatic thoughts like "If I stay 15 minutes more nothing bad will happens", "If I already passed the interval of 2 hours, then it doesn't matter how long I stay, it will be a failure", "I can't do anything right", and "Gaming is my only way to relax myself".

Relaxation techniques helped the patient in coping with craving for gaming, but also with the alcohol craving.

The gradually increase in overall functionality was registered on GAF scale and remained relatively stable between week 10 and 20, which underline the importance of gaming-related behavioral changes.

The increase of the AUDIT score after the finalization of the CBT program is a reflection of the different patterns of addiction which need to be addressed during the therapy, for gaming addiction and alcohol dependence. Also, it could reflect the necessity of a longer duration for alcohol dependence-focused CBT.

5 Conclusion

In the context of an increased Internet use for various daily activities, the risk of gaming addiction -especially in young population- is significant. Due to the complex nature of a behavioral addiction, and to the high rate of psychological co-morbidity, CBT should include techniques for cognitive restructuring, relaxation, attention-switch, and daily activities programming.

This case presents a patient with Internet gaming disorder and co-morbid alcohol use disorder who underwent 10 weeks, bi-weekly, structured CBT focused on cognitive restructuring and coping skills training. This patient presented features of avoidant personality disorder, and has history of marijuana and benzodiazepine use previous to the Internet addiction onset. Also, a gambling disorder

has been diagnosed and partially treated with fluoxetine previous to the Internet gaming addiction.

Significant academic and social impairments were associated with the current disorders. The participation of the patient in the therapy was good, although he didn't do always his homework recommended by the therapist. No pharmacological treatment was initiated during CBT.

The evolution of the Internet gaming disorder was good, with a mean 50% decrease in the outcomes, but the alcohol- use disorder severity decreased with only 33% and increased at follow-up, suggesting a new, alcohol use-focused CBT should be initiated.

We consider it is necessary to collect information from a caregiver or a family member, in order to corroborate his/her observations with the results reported by the patient, and the reflections of the therapist.

The monitoring of patients with multiple addictions (behavioral and/or drug-related) is necessary throughout the duration of treatment, but also after ending the structured psychotherapy, with frequent follow-ups, due to the high risk for relapse.

When multiple addictions (behavioral, and drug-induced) are concomitantly diagnosed, CBT should address to all the disorders, with specific techniques for each one, whenever possible. While some of these addictions could respond rapidly, other could have a slower, or only a partial response.

Further research should focus on designing a guideline for the psychological approach to the Internet gaming disorder, based on the available data regarding the risk factors, co-morbidities, and personal history.

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