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Case Study

Comorbidity Issues between Autism Spectrum Disorders and Internet Addiction. Diagnosis and Treatment Implications

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Abstract

The aim of the present paper is to present comorbidity issues between autism spectrum disorders and internet addiction due to scarce research on the topic. Additionally, it examines some treatment suggestions concerning these mental disorders. Our paper focuses on data concerning coexistence and similarities of these mental entities. It is argued that cognisance of specific traits of people with Asperger and/or other mental disabilities is needed in order to have beneficial treatment on internet and videogaming addiction.

***Keywords**: Mental Disorders; Videogaming Addiction; Autism Spectrum Disorders*

Introduction

Internet and video gaming addiction has been the subject of many research studies, as it is a serious issue for public mental health. Usually, it is referred that internet addiction is a disorder often coexisting with depression [1]. Little is known though about diagnosis and treatment of internet addiction's comorbidity issues with autistic spectrum disorders. Typically, reviews concerning research about internet addiction [2,3] do not mention elements about this specific comorbidity. Rare data, such as those presented by Orzack and Orzack, have described in depth diagnosis and treatment of this comorbidity [4] and have applied their innovative method of multimodal therapy supporting its effectiveness with evidence-based arguments. For this reason, our paper will focus on data concerning coexistence of these mental entities.

We claim that spherical diagnosis of all morbid issues would contribute to more empathetic and skilled support and thus effective personalized treatment program to internet addiction issues. Subsequently, definitions of these main disorders will be presented.

The National Autistic Society (NAS) defines autism as "a lifelong developmental disability that affects how a person communicates with, and relates to, other people. It also affects how they make sense of the world around them" [5]. According to the NAS, "people with autism have said that the world, to them, is a mass of people, places and events which they struggle to make sense of, and which can cause them considerable anxiety [5].

Autism spectrum disorder (ASD) is a complex developmental condition that involves persistent challenges in social interaction, speech and nonverbal communication, and restricted/repetitive behaviors [6]. The effects of ASD and the severity of symptoms are different in each person.

Internet addiction classifications is not yet accepted as a psychiatric disorder in DSM-V, so we chose APA Dictionary definition, where IA is defined as "a behavioral pattern characterized by excessive or obsessive online and offline computer use that leads to distress and impairment. The condition, though controversial, has attracted increasing attention in the popular media and among health care professionals. Expanding research has identified various subtypes, including those involving excessive gaming, sexual preoccupations, and e-mail and text messaging" [7].

However, videogaming addiction is considered as a mental disorder by DSM-5 noting that gaming must cause "significant impairment or distress" in several aspects of a person's life. This proposed definition is limited to gaming and does not include problems with general use of the internet, online gambling, or use of social media. It is highlighted that young people are at particular risk of developing internet addiction disorder, as Wallace [8] and Tomczyck [9] state referring to case studies of students, who had serious problems with their academic duties, because of their excessive engagement with internet and mainly gaming.

The proposed symptoms of internet gaming disorder include: Preoccupation with gaming, withdrawal symptoms when gaming is taken away or not possible (sadness, anxiety, irritability), tolerance, the need to spend more time gaming to satisfy the urge, inability to reduce playing, unsuccessful attempts to quit gaming and giving up other activities, loss of interest in previously enjoyed activities due to gaming, Continuing to game despite problems, deceiving family members or others about the amount of time spent on gaming, The use of gaming to relieve negative moods, such as guilt or hopelessness, risk, having jeopardized or lost a job or relationship due to gaming [10].

The importance of treating and controlling internet and videogaming addiction is obvious and well documented [11,12]. According to Cummings and Vandewater [13], children and adolescents who spend most of their time in screen-based media are not willing to spend their time for other activities such as reading, doing homework, exercising or socializing. As time goes by this preference evolves to pathological internet use and quite often is transformed to addiction.

Interestingly, some research data present special characteristics of internet and video gaming attractions that are associated with high functioning autism's ones, respectively [14-16]. For example, restricted and repetitive interactions that are gratified by video game community. Participating in the virtual community, the Asperger and the internet addicted adolescents feel liberated and equal to their peers, safe and relieved, without their usual communication issues. As a matter of fact, lack of communication skills intensifies the need of autistic with high functionality to become members of virtual communities, whereas real world seems rejecting and difficult to be embodied. Consequently, relapses may occur if the person feels vulnerable towards peers, family, partners and/or coworkers. In all cases, we will need to consider that addictive behaviour in individuals with ASD stems from a longing for social contacts [17].

It is worthwhile to refer the similarities between autism and addiction. It seems that both ASD and addiction are neurobiological brain disorders associated with dopamine [18,19]. Additionally, they present behavioural similarities, such as detailed perception and compulsive, inflexible and repetitive habits. Furthermore, autism spectrum disorders and addiction might be described as disorders with genetic predisposition, similar traits and vulnerability. It seems that beyond genetic causes their fragility is associated with early stressful and recent painful life events, such as anxieties, lack of understanding, traumatization and loneliness combined with bullying experiences. So, the cortico-striatal dopaminergic regulation systems are affected, as van der Wjngaarden., *et al*. explain [19]. These findings are pivotal for diagnosis and treatment also highlighting the difficulty of adequate diagnosis of two different clinical entities.

Additionally, it is worthwhile to highlight that knowledge of basic communication particularities are mandatory for effective treatment of Internet and gaming addiction. Indicatively, some language and perception issues are presented. As it is well known, the sui generis way of world perception of ASDs and Aspergers is reflected to the special way of interpretating verbal and non-verbal signs. The most striking language difficulties concern pragmatic language aspects (i.e. the ability to use and comprehend language in context) and these are universal across individuals with ASD, irrespective of their level of functioning [20]. Language comprehension in verbal social com-

munication calls upon pragmatic language skills, since the listener is often required to work out the non-literal meaning of the speaker's message by using the context and his own knowledge of the world. One of the most salient features of the impaired pragmatic language comprehension in ASD is an overly literal interpretation of utterances which causes problems in understanding humor, irony and metaphors, as well as in making inferences and comprehending indirect requests [21,22].

Below, we will present some treatments specialized to internet addiction besides pharmaceutical therapy. Treatment includes pharmacological and psychological therapies, mainly cognitive- behavioral and motivational interviewing. Antidepressants prescribed by psychiatrist, psychotherapy and psycho educational intervention [23].

Cognitive behavioral model has been adapted to internet addiction and focuses to the following issues. Meta-analysis highlights the prevalence of cognitive behavioral therapy [23]. Pioneers, as Young [24] and Davis [25], have presented and described efficient techniques, such as encouraging the patient to self-observation and writing down his/her emotions, before during and after internet use. These techniques are estimated as beneficial, given that denial is a defense mechanism used systematically by internet addicted adolescents. Thus, by self-observation and recording reactions to stimuli, they start to realize the extent of dependency addiction's connection with feelings of loneliness, depression, boredom and cognitive distortions, such as lack of self-efficacy, self-sabotage, and similar negative self-perceptions. Regarding behavioural interventions and abstinence, researchers agree that moderated and controlled use of the Internet is more effective, in opposition to what was expected or used in cases of other addictions where abstinence was mandatory.

Specific techniques proposed by Young [24] include recognition of what the addicted person is missing and carrying positive reminders cards. She suggests the use of Psychoeducation Program that presents profiles of On-lineaholics and their similarities with alcoholics and assess of on-line time. Besides, it is important that the patient recognize personal addictive triggers realizes that escape becomes the drug of the Internet. Additionally, time management techniques are necessary. Furthermore, he should take concrete steps to address problems, such as confronting his loneliness and finding support in the real world. Last but not least, he should consider the benefits of treatment and practice tips for the journey of recovery.

Clinical Case Formulation

Our case study encompasses elements and issues that coexist, but often ignored. Fortunately, these comorbidity traits do not refer to a great percentage of population. However, a thorough spherical diagnosis performed by a multi-disciplinary specialist's team can contribute to effective treatment, so that individuals could lead a functional and meaningful life.

Our case concerns an adolescent of fifteen (15) years old called John who was addicted mainly to videogaming for a couple of years, but the main reason he visited a child psychiatrist after his parent's persistence was major depressive symptoms. John, also had problems with school attendance, loneliness and intense feelings of low self-esteem -as he stated that he was victim of school bulling- and not seldom he had suicidal ideation. Additionally, he adopted a defensive behaviour implying that his internet use is under control and thus that he could stop it at any time that he wished for.

John had traumatic childhood experience due to parents' unemployment and other family issues, such as health and marital issues. He started to get addicted to video games in a period that he was feeling lonely and depressed and being bullied by his school peers. More specifically, as John characteristically explained often received 'nasty' comments from his peers like 'queer', 'alien' and 'mad' especially at break time.

On the other hand, through his endeavor via video gaming he could interact, be accepted and also have fun with interesting people around the world. As time went by though, John was so engaged with the online gaming that he stayed up later and later to reach the next

game levels that he not only had school denial but also was cut off from all his outdoor activities such as football and chest group, missed meals. Additionally, John started being aggressive towards his parents and brother.

Diagnosis

As mentioned above John was referred to a psychiatrist due to intense depressive feelings. As the problematic overuse of internet and videogaming were concerned, it seemed rather insignificant by him and the specialist. Thus, it was not assessed as an additional, separate diagnosis at that period, although it had affected all his life routine schedule and thus, it had significant health implications. Underestimation of comorbidity boosted behavioural dysfunctional patterns with the false hypothesis that there were secondary symptoms, associated with major depressive disorder. Thus, the reason for the lack of a spherical diagnosis was most probably the similarities of these entities. However, this delay of holistic diagnosis contributed to feelings of impasse and establishment of internet addiction, as this disorder was underestimated. Furthermore, Asperger's diagnosis delayed, as it was camouflaged by John's high IQ that did not influence particularly his outdoor activities and academic performance.

When John was referred to a multi-disciplinary specialist's team their thorough evaluation process was based not only to clinical image and interview with the patient, but also in administrating the following assessment tools: the ADI-R [27] to the parents and the ADOS-2 [28] to the adolescent, as well as the neuropsychological tests performed by a neuropsychologist, such as the autism-spectrum quotient (AQ) for Asperger. The Autism Diagnostic Interview-Revised (ADI-R) is one of the most widely used diagnostic tools in determining whether a child or an adolescent have ASD and basically is an interview with the parents that focuses on the detailed developmental history of the adolescent [27]. ADOS-2 is a common standard comprehensive diagnostic tool used to help assess ASD. The Autism Diagnostic Observation Schedule-second edition (ADOS-2) is a standardized test used to evaluate the key indicators of Autism, including communication, social interaction, restricted and repetitive behaviors [28]. Finally, a neuropsychological test was delivered, which was developed by Baron & Cohen and its psychometric properties are valuable for diagnosis of Autism spectrum and Asperger disorders [29]. It is about a self-report questionnaire that quantifies autistic symptoms. The internet addiction evaluation was also performed by administration of Internet Addiction Test created by Young in 1998 [30].

It was remarkable that John had a high score at all assessment tools. Thus, it was revealed that he presented comorbidity of three mental disorders: Asperger, major depression and internet addiction with preference to videogaming. It is important to notify that DSM-5 includes internet gaming as mental disorder.

Treatment

The process of treatment was so complicated, as the case study itself. It must be noticed that consecutive steps were followed as John's needs were numerous due to his delayed holistic assessment.

The previous specialist unfortunately assumed that treating John's major depressive symptoms with a combination of pharmacotherapy and psychotherapy would eliminate any other dysfunctional symptoms. But a year later, a slight amelioration has been observed and John's internet addictive behaviour was well established with the underlying cognitive distortion of both physician and patient that the cure of depression would terminate addictive behaviour. But as explained earlier this was not the case. So, consultation to a specialist led to another diagnosis that seemed rather prevailing, that of Asperger one.

It must be underlined that the specialist, as well, presented medication as the most potent therapy for this patient. It is worth wondering why other interventions were not encouraged, although the symptoms of all the three entities were still present.

So, after another year of existence of almost the same behavioural issues, parents decided to take the initiative to ask extra help from a specialist muti-disciplinary team. The team was applying cognitive behavioural therapy and passed him Young's internet addiction test, as well evaluated internet gaming dependence and overuse.

The multi-disciplinary team was comprised by a social worker and family therapist who used her parent counselling skills, a speech therapist who helped John with his social skills and a personal trainer for motivating him to physical activities, suggesting a combination of interventions and activities-in different levels. This team was specialized to communicate effectively with Aspergers adolescents, so they succeeded to motivate John to be engaged in interesting activities other than gaming and screen addiction. Besides, they were experienced to cope with addictions, especially internet and gaming ones.

Results

Although there were many hindrances, limitations, and intermediate relapses, this supportive team, in cooperation with the psychiatrist and continuation of administration of his antidepressive medication, contributed to John's amelioration of quality of life and functionality. Communication was adapted to the characteristics of John's ASD functionality in order to have beneficial treatment in all levels including addiction.

More empathetic and skilled support derived from cognisance of specific traits of people with Asperger and/or other mental disabilities So the therapeutic team avoided indirect and open questions, which often confuse ASD and Aspergers, as research pointed out. Likewise, the team tried to encourage this adolescent to write down his thoughts and especially emotions in a journal, so that he started to regulate his internet problematic use. Additionally, the team avoided preaching and accusatory tone while explaining the vicious cycle of video gaming overuse, on the one hand and suggesting screen detox, on the other hand. Furthermore, specific cognitive behavioral techniques were used including journaling which revealed the interdependence between depressive feelings including loneliness and self-rejection and traumatic incidents in the real word connected with his autistic behavior, such as bullying. So, techniques of coping with issues were suggested.

Six months later John has made a significant progress, but treatment has not yet been completed. He returned to his school and the team has worked systematically with the school environment for dealing with the school bulling incidents. John has received peer support and thus soon there was an end of this serious social phenomenon.

Of course, pharmaceutical treatment continues, and John will need support until he restores completely his functionality. However, he has diminished the hours of gaming and his overall symptoms described above have been alleviated. It is worth noting that John now feels understood and communicates better not only with his therapists, but with his environment, as well.

Discussion

We propose that similar complex clinical case studies should be addressed by multimodal models of treatment, as Orzack and Orzack [4] state. Besides, cognitive behavioral therapy seems quite effective, especially when it is adjusted both to internet addiction [25] and ASD characteristics [31].

The parameter of specialized communication methods adjusted to ASD should be underlined, as it is significant and needs further research. Obviously, it is necessary to adapt to autistic way of perceiving and elaborating reality and responding to environmental stimuli. Furthermore, it is suggested that accommodation to their semantic language processing and other language difficulties concerning pragmatic language characteristics contributes to effective internet addiction treatment in this population.

Therapists are challenged to motivate the person addicted, who quite often has experienced and still experience psychological trauma and rejection feelings. Specifically, it is mandatory to use communication ways adjusted to ASD communication particular traits using specific techniques that could amplify the intercourse between therapist and patient. Besides, family members should be informed and educated to use similar techniques with psychoeducational modules [32]. An illustrating suggestion is to ask short close questions and avoid open questions or accusational style. Given that Aspergers and ASD often misinterpretate verbal and non-verbal messages, they will certainly withdraw quite automatically and close themselves as an ostrich, if they feel rejective attitudes towards them. Furthermore, with therapeutic alliance and personalized approach it is important to avoid patients' dropping out, which is often observed in addicted persons [33].

So, acceptance boosted by deep knowledge of efficient communicative ways might abrade the ground and open up ASD to receive interventional and psychotherapeutical suggestions. Individual programs with explicit and well-structured communication could contribute to the positive evolution of internet and video gaming treatment. Finally, implementation of prevention programs in schools might accelerate internet addiction treatment [34].

Regarding study limitations, certainly there are limitations of our study including the subjective character of clinical case methodology and the chronic characteristics of ASD. Besides, a lot of work is needed for successful treatment of this ASD's adolescent internet and videogaming addiction.

Conclusion

The implications of our findings are that ideally all cases of addiction and developmental disorders should receive a holistic assessment and personalized treatment programs administrated by a specialized multi-disciplinary team that is aware of the likelihood of this comorbidity. Thus, educating professionals adequately and using holistic assessment tools will ensure accurate diagnoses. This will prove helpful too in clinical guidance and effective treatment of addiction with comorbidity issues [32]. Finally, patients addicted to videogaming with ASD will need individual programs and explicit and well-structured communication.

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