

PLAYING WITH VIDEO GAMES: GOING TO A NEW ADDICTION?

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SUMMARY

Nowadays, with the development and diffusion of modern technologies and Internet, the use of video games as a pastime is growing, both online and non-networked. Traditional games are increasingly outdated by video games, and players of all ages are growing. With this research, we have been asked how much video games, seemingly pleasant and innocent pastimes, can become a problem for players, to the detriment of their health and to create new addiction.

A review of the literature over the last two decades has been carried out in PubMed, Medline, on video game addiction and IGD, and books and newspaper articles have been cited online.

The frequent and protracted use of video games with serious personal, family and social consequences is no longer just a pleasant pastime and could lead to mental and physical health problems. Although there is no official recognition of video game addiction on the Internet as a mild mental health disorder, further scientific research is needed.

Key words: Internet Gaming Disorder - video game addiction - behavioral addiction - neurobiology - treatment

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INTRODUCTION

Playing is an important activity as it includes psychological, educational and social aspects. It facilitates personality development, rule learning and social integration in children, teenagers and even adults. The game makes it easier and more enjoyable to learn, feel tired and stimulate the playful reward. It can be used as a tool to motivate school learning. It is a cognitive tool with which one can experience his inner world and that of others: a privileged "lane" for knowing oneself and developing his own personality (Goldstein 1996). In the traditional game there is more socialization and physical encounter with each other, while in the present era of video games the fantastic and virtual world tends to overwhelm the real and the physical. More and more, the modern player lives alone in the fun and play challenge. Communication and meeting with each other is telematic and virtual. Video games can facilitate a greater tendency to the closure of the physical interpersonal relationship and a prevalence for the telematic one.

When can video abuse lead to addiction? According to the World Health Organization (WHO), the concept of pathological dependence is "that psychic and sometimes physical condition resulting from the interaction between a living organism and a toxic substance, characterized by behavioral responses and other reactions that always include a compulsive need to take the substance continuously or periodically in order to prove its psychic effects and sometimes to avoid the malaise of its deprivation." New dependencies, or dependencies without substance, are behavioral addiction. Since, while not having a substance that determines the addiction, they are in themselves the same problems and the bio-psycho-social correlates of drug addiction. They

refer to a wide range of abnormal and legally accepted behaviors: among them we can include pathological gambling, recognized as Disorder in DSM 5 and Internet Gaming Disorder, included in Session III of DSM 5 as a condition that requires further studies to be considered a mental health disorder (American Psychiatric Association 2013).

INTERNET GAMING DISORDER

In the DSM-5 it is mentioned that: "Persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress as indicated by five (or more) of the following in a 12-month period: "1. Preoccupation with Internet games (the individual thinks about previous gaming activity or anticipates playing the next game; Internet gaming becomes the dominant activity in daily life); 2. Withdrawal symptoms when Internet gaming is taken away (these symptoms are typically described as irritability, anxiety, or sadness, but there are no physical signs of pharmacological withdrawal.); 3. Tolerance - the need to spend increasing amounts of time engaged in Internet games; 4. Unsuccessful attempts to control the participation in Internet games; 5. Loss of interests in previous hobbies and entertainment as a result of, and with the exception of, Internet games; 6. Continued excessive use of Internet games despite knowledge of psychosocial problems; 7. Has deceived family members, therapists, or others regarding the amount of Internet gaming; 8. Use of Internet games to escape or relieve a negative mood (e.g., feelings of helplessness, guilt, anxiety); 9. Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of participation in Internet games." Internet gaming disorder may be mild, moderate or

severe depending on the degree of compromise of normal day-to-day activities (APA DSM-5, 2013). Among games used on the Internet, multiplayer online role playing games (MMORPG) are the most complex and require more intense social interaction (Granic 2014). Currently, Massive Multiplayer Online Role-Playing Games (MMORPG) is a very popular and enjoyable leisure activity. However, MMORPG players reveal a high rate (27.5%) of IGD (Achab S., 2011) and MMORPG play is the most cited activity in Internet addiction studies.

Prevalence

The prevalence of video-game addiction by many authors has been and is a source of criticism and dissent regarding the way data is collected, the search for the evaluation sample, and the technical revelation tools. The problem of addiction is most felt in the East, Taiwan (46% on 177 adolescents and young adult MMORPG users) and Southeast Asia and less in Europe (in Germany 2.8% of 10,060 teenagers, in Holland 2% out of 644, In Norway 0.6% of 816 teenagers, assessed with the GAS test), in America (USA and Canada 39% on 442 young and old adults, MMORPG users evaluated with the Addiction Engagement Questionnaire) (Festl 2013). In particular, male teenagers seem to be more vulnerable to the problematic use of the game. (Haagsma MC, 2012).

Etiology

As far as etiology is concerned, there are no definite data of etiology, and a bio-psycho-social multidimensional evaluation is useful. The currently proposed criteria emphasize biological factors (including changes in brain function). Other risk factors include some traits of personality (especially impulsiveness and hostility) and user motivations for play (socialization, overcoming boredom in everyday life, escaping from a non-rewarding social life or a negative mood).

Gratification Mechanisms

It is believed that the basis of substance and behavioral dependence is an alteration of brain mechanisms involved in gratification and motivation. Meso-cortico-limbic circuits (neurons of the mesenteric ventral tegmental area projecting to the nucleus accumbens and the prefrontal cortex) are involved. These mechanisms are regulated by several neurotransmitter systems, including those mainly involved in the dopaminergic system, which controls the motivational drive to seek reward stimulus and the opioid system, which mediates the gratification processes resulting from the consumption of the substance (Nava 2004). An increase in dopaminergic transmission at the nucleus accumbens is traditionally considered as the mechanism underlying the gratification and reinforcing effects of the substance abuse (Koob 1998). The neurobiological mechanisms underlying the condition of addiction are only partially known.

While acute intake of substances cause an increase in dopaminergic transmission, the chronic intake would result in reduced dopaminergic functionality, leading to a dysfunction of the orbital-front cortex and the crawler cycle. Reduced dopaminergic transmission in these areas could explain the disturbed functionality of control systems and the attribution of salience with substance compulsive research by addicts (Volkow 2004). An important role is also played by brain areas involved in learning and memory (hippocampus), emotions (amygdala), and pulse control (cortical-frontal areas).

Neurotransmitters and addiction

Goodman reviewed the neurobiological aspects of dependencies by examining a large number of studies concerning the potential role of several neurotransmitters and receptors in the "addictive process" (Goodman 2008).

Serotonin, in addition to dopamine, is likely to be implicated in the addictive process as demonstrated by the study conducted by DR. Pallanti and other authors, in 2006, which found an alteration of serotonergic functionality in a sample of gamblers. Moreover, impulsivity, one of the transversal characteristics of the various forms of addiction, is traditionally related to alterations of the serotonergic system.

The most credited hypotheses suggest the presence of an imbalance between the serotonin, dopamine and endogenous opioid systems. Their initial vulnerability could cause malfunction of the "pleasure centers". These alterations would tend to cronicize over time and form a new, abnormal, stable and resistant condition of 'non-equilibrium' (Marazziti 2015).

Imaging Studies

PET was used to evaluate the acute effects of dopamine, GABA and opioids; functional RM evaluates the involvement of specific brain areas in addicted people during intoxication, craving and abstinence. The prefrontal cortex, the amygdala, the hippocampus, and the nucleus accumbens are the brain regions that appear to be more involved in the development and maintenance of addiction (Nava F, 2004).

The fundamental finding of a volume increase in left ventricular striatum associated with the frequency of video games is in agreement with the results of a greater spread of dopamine during video game reproduction (Koepp 1998) and over-gambling in patients of Parkinson's due to dopaminergic drugs (Dagher 2009).

Addiction Components

Griffiths observed that addictions, both substance and behavioral, have six components in common. They are: 1. Salience (when an activity becomes the most important in person's life and dominates their thinking, feelings, and behavior); 2. Mood modification (the subjective experience that people report as a consequence of engaging in the particular activity); 3. Tolerance (the

process whereby increasing amounts of the particular activity are required to achieve the former effects); 4. Withdrawal (the unpleasant feeling states and/or physical effects that occur when the particular activity is discontinued or suddenly reduced); 5. Conflict (Conflicts between the addict and those around them (interpersonal conflict) or from within the individual himself/herself (intrapsychic conflict) about the particular activity); 6. Relapse (the tendency for repeated reversions to earlier patterns of the particular activity to recur and for even the most extreme patterns typical of the height of the addiction to be quickly restored after many years of abstinence or control) (Griffiths M, 2005-2014). These components are also found among the diagnostic criteria of IGD in DSM-5.

SYMPTOMATOLOGY

Psychic

The player devotes a lot of time to video games (or would dedicate it to him/her if he/she was not prevented).

They tend to fall asleep at school, at work or while doing other activities, and forget other activities (including study, work); he/she prefers video games rather than spending time with friends, and he/she shows a retreat from other social activities and plays in secret. The gamer tends to be apathetic or irascible when he/she can not play. The player manifests irritability, is angry and is aggressive when they are interrupted while playing or when they are prevented from playing. He/she tends to have thoughts and fantasies focused on the game, even when they do other activities. Often gamers try to get ever-new video games, spending considerable sums of money, or insisting on buying them. Also players tend to make alterations or anomalies in habits (nutrition, personal hygiene, physiological functions, sleep). Social retirement, reduction of work and study engagement, family and emotional isolation are common symptoms or behaviors.

Physical Symptoms

Obesity, sleep deprivation and heart disorders are the main discomforts caused by a strong addiction on video games. Symptoms of video game addiction lead to loss of sleep, increased blood pressure, cholesterol, lipoproteins, triglycerides and, finally, high insulin resistance (Turel 2016). Other events such as alterations in the sleep-wake rhythm, psychophysical asthenia, lower immune system efficiency, appetite alterations, headache, vision difficulties, conjunctival irritation, orthopedic problems and low back pain may be present, caused by incorrect and prolonged postures in front of the PC, in addition to tendonitis and carpal tunnel syndrome (from uninterrupted mouse use). In susceptible persons, photosensitive epilepsy may be present, due to the uninterrupted visual stimulation of long-term presence in front of the monitor.

Diagnostic instruments video game addiction

Instruments of Video Game Addiction: the Game Addiction Scale (GAS) (Lemmens JS, 2009), the Video Game Addiction Test (VAT)(Van Rooij AJ 2012), the Indonesian Online Game Addiction Questionnaire, (Jap T, 2012) and the Problem Video Game Playing Scale (PVP) (Tejeiro Salguero RA, 2013)

Comorbidity

Health may be neglected due to compulsive gaming. Other diagnoses that may be associated with Internet gaming disorder include major depressive disorder, ADHD, and OCD.

THERAPY

Pharmacological

With the observation that new behavioral addictions have characteristics similar to obsessive-compulsive disorder, addictive and mood disorders, various classes of drugs have been used (SSRIs, mood stabilizers, opioid antagonists and antipsychotic agents). They have shown efficacy in reducing symptoms. Serotonergic antidepressant therapy is known to reduce the craving of addicts. Such individuals also benefit from treatment with naltrexone and mood stabilizers. In most cases, pharmacological treatment should be associated with psychotherapeutic and social interventions. (Mulé A, D'Alessandro A. 2008). In 2006 Dr. Dell'Osso and others conducted a study in which 19 compulsive internet users showed improvement from escitalopram treatment. Currently there are no available guidelines for the pharmacological treatment of behavioral addiction, however recent data suggest the potential efficacy of bupropion (Han HD, 2010) and methylphenidate (Han 2009) in reducing video game craving.

Behavioral Cognitive Psychotherapy

Cognitive-behavioral therapy (CBT) is considered the first choice for treatment of various impulse control disorders (e.g., trichotillomania and pathological gambling), as well as some others containing expressive traits of impulsivity. The same model served as a selection parameter to Internet and video game addiction (Hodings DC, 2008).

Although there are fewer protocols when compared to the study of other psychopathologies, research has shown satisfactory effectiveness, proving the same efficacy of CBT in the treatment of other psychopathologies related to impulse control disorder. (Lins Lemos I, 2014)

PREVENTION

To better control the risks associated with the prolonged use of video games, some behavior rules can be followed (Alonso-Fernandez F., 1999). The first rule

concerns the amount of time spent using the video game, avoiding daily use and recommending that it does not exceed an hour per day. A second rule concerns the quality of consumption, ie the need for short and frequent pauses, at least one every ten minutes. You must keep in mind the safety rules in using the video terminals and do not always keep your eyes focused on the monitor. It is necessary to rest the ocular muscles, which are constantly contracted during the game. You have to prevent the video game from becoming the main element of leisure, leaving space for other real and social activities, such as sports and dating with friends. In this way, both the problems of sedentary and social isolation are prevented.

In any case, it is always important that parents do not let their children decide for themselves, the times, the ways and the topics of video games.

IGD and death

Can video game addiction lead to death? The video game itself has no destructive capacity, and can be happily used as a therapeutic tool.

The video game intervention significantly improved treatment adherence and indicators of cancer-related self-efficacy and knowledge in adolescents and young adults who were undergoing cancer therapy (Kato 2008).

The serious addiction to video games gradually leads to a growing social seclusion, comparable to the social death of the player. The individual has a single interest: the video game! Sadly, stories are more and more common in newspapers where adolescents and young adults died after playing uninterruptedly for days without eating and sleeping. "A young, thirty-two-year-old man dies in Kaohsiung, Taiwan, at an Internet café after playing video games for three days in a row" (*Corriere della Sera / Esteri*, 2017). "United States, plays for streaming video games for 22 hours for charity: 35-year-old dies live" (*The Messaggero.it*, 2017)

CONCLUSIONS

From the analysis of the data and the scientific research examined, an agreement has not yet been reached to define a certain diagnosis of mental health disorder for IGD, as it was for the Gambling disorder in the DSM-5, further scientific research is needed. The goal is that subsequent research will have a greater sharing of methods and transcultural statistical assessment. It is necessary to find a common protocol, accepted and shared by everyone. It is useful to trace clearly the boundary between occasional, problematic and video game addiction, both on-line and off-line, supported by neurological bases and functional neuroimaging. It can be stated that when the continuous and prolonged use of videogames for several hours or days, compromises the social, personal and physical life of the player, with phenomena of withdrawal, relapse and conflict, even if no addiction disorder is diagnosable, it is certainly clear and obviously detrimental to the health

of the individual. It is helpful to provide sufficient and accurate information to children and adults so they can be more aware of their video game behavior and to prevent any video game addiction. Just because when we follow the pleasure we can not keep in mind any related damage. Excess can cause health problems that are not easily resolved and sometimes can be clearly dangerous.

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