

VIDEO GAMES AND COVID-19: HOW DO LOCKDOWN AND ADDICTION INTERACT?

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SUMMARY

The global epidemic of COVID-19, social isolation and the fear of viral contagion have determined and determine profound changes in social relations between people. The purpose of this research, carried out online on published scientific studies, on information from magazines, accredited websites, books and newspapers, was to consider the possible interactions between the lockdown, the use of video games and the Internet Gaming Disorder during the pandemic. The conclusions are an undoubtedly beneficial interaction for the psychophysical health of the users and the improvement of anxiety, stress and socialization with the help of video games during the pandemic. However, it is necessary to pay attention to the excessive, protracted and constant use of videogame activity, abuse and possible addiction, in particular for adolescents with previous psychological discomforts and pathologies such as depression, anxiety and stress. Parents are advised to pay attention to the time their children spend playing video games.

Key words: COVID-19 - videogames - Internet Gaming Disorder - pandemic - lockdown - gaming addiction - gaming addiction - therapy

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INTRODUCTION

The COVID-19 coronavirus pandemic is a global health emergency that is dramatically affecting the daily lives of millions of people around the world (Johns Hopkins Coronavirus Resource Center 2021), with severe socioeconomic and mental health consequences for individuals (Cai et al. 2020). The negative psychological consequences concern all those people forced into isolation and / or quarantine (Brooks et al. 2020) and in particular health professionals directly involved in the management of Covid-19 patients (Chen et al. 2020).

Living in the time of the coronavirus means experiencing not only a global health emergency but also extreme psychological stress that puts a strain on our identity and our relationships (Riva & Wiederhold 2020). In this climate of anxiety, stress and social isolation, the World Health Organization and some of the major video game companies have launched a new campaign - with the hashtag #PlayApartTogether - with the aim of encouraging people to follow the recommendations on social distancing to avoid the spread of Coronavirus, simply by staying at home and playing video games online, alone or with friends (Malgieri 2020). Advice has been proposed by the WHO to protect the psychophysical health of adolescents, including the use of exergames, video games which, in addition to being a pleasant playful activity, stimulate and involve body movement and socialization (WHO 2020a).

It is well known how the impact of restrictions is crucial for socialization and social contact during the current viral pandemic. They have profoundly changed

our behaviour, family, social interactions and work: the fear of contagion and the related isolation could give rise to new mental health difficulties or outright mental illness in particularly sensitive people or those subjected to prolonged stress. The purpose of this study is to look for any correlations between the use of video games, social isolation, Internet Gaming Addiction and the Covid-19 pandemic.

METHODS

A search is carried out on PubMed, MedLine, Google Scholar using the keywords of COVID-19, videogame, internet gaming disorder, pandemic, lockdown, gaming addiction, addiction therapy. Books, scientific publications, magazines and newspapers have been consulted.

RESULTS

Lockdown

All the rules when they are imposed can determine a first reaction of opposition or of sharing and acceptance. There are those who understand the importance of sacrifice and carry out the imposed rules and tasks and those who have difficulty accepting them. Obviously, however, the healthy fear of viral contagion makes us live with the difficulties of social isolation, personal distancing and all the problems related to it. The isolation imposed, or chosen as a precaution, arouses in us a greater desire for socialization and sharing of experiences. Here modern technologies and the Internet in particular have been very useful to overcome the loneliness of the lockdown. However, we

must pay close attention to abuse and addiction to them: they can cause suffering and real diseases. Young and collaborators (1999) highlighted some typical elements that facilitate the onset of psychopathologies linked to the use of the Internet, such as unfavorable life events that see the Internet as an escape route or vent and risk behaviours as a reduction of experiences of real life and relationship.

Social relationships are very important for human health, well-being and longevity, as evidenced in a recent scientific publication (Holt-Lunstad et al. 2018). Another research finds that prolonged social isolation can induce stable changes in human and animal behavior (Zelikowsky et al. 2018). Fortunately, the duration of social isolation is proportionate to the need for health prevention and is limited in time, with a subsequent gradual return to normal in everyday life. Those in quarantine and isolated at home or in the hospital have an additional psychological and social difficulty.

A recent scientific study by researchers from King's College of London notes that the psychological difficulties caused by quarantine can last for a long time and gives indications to alleviate them, in particular as regards the information to be given and the duration of isolation. The researchers say "The study showed a wide range of psychological impacts of quarantine, including symptoms of post-traumatic stress disorder, depression, feelings of anger, fear and substance abuse." Those with psychiatric difficulties and health professionals are the people who experience the greatest psychological difficulties due to quarantine and related stress (Brooks et al. 2020).

Positive use of video games

Among the positive aspects of the use of video games, in addition to the hedonic and entertainment one, there is the use of experiences to improve the player's cognitive abilities. Today video games are used not only in training for children and adults, but also for rehabilitation and maintenance of both neuromotor and cognitive skills, for example with the elderly. The research confirms that the videogame experience leads to the development of specific skills related above all to the visual-spatial and problem solving fields. Correct behaviours are immediately reinforced and rewarded, inadequate ones are blocked or indicated as such.

Virtual reality (VR) video games appear to be effective tools for arousing positive emotions and reducing negative emotions and state anxiety in individuals. In particular, the level of involvement of the body during the play experience and the genre of video games have a crucial effect in determining the ability of a game to improve positive emotions and decrease players' state anxiety (Pallavicini & Pepe 2020). Exergames are video games that use exercise and physical activity as

input for the game. This playful genre, created with the aim of overturning one of the stereotypes that plague video games, such as those of sedentary activity and laziness in the player, promotes an active and dynamic lifestyle. The technology present in these electronic games detects the movements of the body and helps the patient to correct them thanks to visual biofeedback.

The exergames (exercise + gaming) are usable by everyone. They range from the child to the elderly who are stimulated to move in a fun way, drawing countless benefits, especially rehabilitation. In the little ones, the "active games" have proved to be an effective tool to induce them to carry out physical activity regularly, proving to be a valid ally in the prevention, care and treatment of scoliosis and incorrect postures of the back. Spatial awareness, attention, understanding of cause-effect relationships are some of the most stimulated cognitive aspects (Höysniemi 2006). With regard to social aspects, a study conducted by Mueller, Agamanolis & Picard (2003) has shown that the use of exergames in group contexts favours a decrease in the risk of social isolation and loneliness and facilitates an increase in friends' networks and socialization.

For example, the Ministry of Health, in full COVID-19 emergency, has included exergames in the list of physical activities that adolescents can do at home, considering them useful not only for motor activity, but also in promoting social interaction, as they require coordination in movements and communication: the physical benefits mainly concern agility, speed, coordination, reaction time, cardiovascular improvement (WHO 2020a).

During the period of the COVID-19 pandemic, healthcare professionals, in particular hospitals, were subjected to considerable psychophysical stress and anxiety to ensure continuity of assistance and prevention (Tavormina et al. 2020). Numerous scientific studies have shown that, among the various therapeutic programs, virtual reality represents a highly specialized and effective tool for the prevention and treatment of stress and anxiety.

"The Secret Garden" is an immersive virtual reality (VR) tool, a 10-minute, 360-degree 3D video at 4K resolution supported, free at (<https://www.covidfeelgood.com/>), was designed to combat stress during COVID-19. Recently developed in Lombardy, the Italian region at the center of the coronavirus epidemic in Italy by a group of Italian psychologists (<https://become-hub.com/en/>). This game is usable with any smartphone or tablet/PC. To fully experience the psychological benefits of being in a digital place, a headset is also needed (Riva & Wiederhold 2020).

MIND-VR is a psychoeducated experience on stress and anxiety and represents one of the first published virtual reality content designed specifically to be used for psychological support for healthcare

professionals affected by the health crisis triggered by the COVID-19 pandemic. MIND-VR is available free of charge, both in Italian and in English (<https://mind-vr.com/>) and once the pilot studies in progress have been completed, the data collected will allow the authors to evaluate the use of the first version of this virtual experience and to collect important data for the development of its final version. Furthermore, the data collected will allow for more general reflections on the effect of virtual reality for psychoeducation in terms of short and long-term learning (Pallavicini et al. 2021).

Video game addiction

In the #healthyAtHome information campaign, the World Health Organization offers useful tips and advice to take care of our mental health during the Covid-19 pandemic. It recommends being aware of the time spent in front of a screen each day, taking regular breaks from activities, and making sure children don't spend much more time on video games than usual. Remember that while video games can be a way to unwind, it can be tempting to spend much more time than usual when you are at home for long periods and suggests keeping the right balance with daily routine offline activities (WHO 2020b).

Attention must be paid to the prolonged use of video games, since video game activity is a pervasive phenomenon: it is able, at the same time, to support learning and the improvement of well-being, as well as to contribute to the generation of pathologies and deviant behaviours. The reason for this lies in the fact that, when we video play, numerous aspects of our personality, our psyche and our intelligence are involved, stimulated and potentially led to change. Video games are not "neutral technologies", but environments with invisible borders, permeated by actions and processes that stimulate an inevitable psychological transformation of the user (Bittanti 2005, Bittanti 2008).

A cross-sectional study including adolescents (N=1512) aged 13 to 18 years (mean age = 15.51 years) was used to evaluate measures of insomnia, depression, anxiety and stress, IGD and quality of life during COVID-19 pandemic. It highlighted that psychological distress, characterized by depression, anxiety and stress, served as a strong mediator in the association between IGD, insomnia and quality of life. IGD directly influenced insomnia and quality of life among participants (Fazeli et al. 2020).

A recent study on a sample of 162 Italian children, aged between 8 and 10, shows that the use of video games is constantly increasing. To assess the possible addiction to video games during the COVID-19 pandemic and the association of anxiety, participants were tested with the Children's Video Game Addiction Scale (VASC), Anxiety and Depression Test (TAD)

and the Children's Anxiety Meter-State (CAM-S). 96.3% of participants said they had access to one or more devices and reported a low risk of video game addiction, a moderate level of trait anxiety on TAD and low state anxiety on CAM-S. Males reported spending more time playing video games, having greater self-control, and being influenced by reinforcement mechanisms. Females had higher levels of trait anxiety. In regression analysis, state anxiety was a predictor of video game use and addiction (De Pasquale et al. 2021).

A longitudinal study conducted (Teng, Pontes et al, 2021) on a sample of 1,778 children and adolescents (50.7% male) in southwestern China, examined data collected at two time intervals: before the pandemic of COVID-19 (October to November 2019 - [T1]) and during the COVID-19 pandemic (April to May 2020 - [T2]). Data was collected on the perceived impacts of COVID-19, video game use, Internet Gaming Disorder (IGD), and depressive and anxiety symptoms. The results indicated that both video game use and IGD significantly increased for adolescents at T2. Findings from the cross-panel model suggested that depressive and anxiety symptoms at T1 positively predicted IGD and video game use at T2 (especially for boys), but not inversely. The perceived impacts of COVID-19 mediated the relationship between depressive and anxiety symptoms at T1 and IGD at T2. Both children and adolescents increased the use of video games at T2, but only adolescents significantly increased the severity of IGD at T2. The results supported the compensatory hypothesis, as individual responses to COVID-19 can act as a mediator between personal predisposing variables and IGD.

In 2013, Internet Gaming Disorder (IGD) was incorporated into the current version of the DSM-5 and the IGD refers to problematic use of video games. Longitudinal studies on the etiology of IGD are lacking. Furthermore, it is currently unclear if the associated psychopathological problems are causes or consequences of IGD. Only online gaming addiction has been included in the Appendix to DSM 5 as a disorder to be investigated and studied (Weinstein et al. 2014).

Gaming disorder, online and offline, is defined in the eleventh revision of the International Classification of Diseases (ICD-11, 2018) as a pattern of digital or "video game" gaming behaviour characterized by impaired control over gaming, with priority increasing given to the latter over other activities, to the extent that gambling takes precedence over other interests and daily activities, with the continuation or increase of playful activity despite the occurrence of negative consequences. To diagnose gambling disorder, the behavioral pattern must be of sufficient severity to cause significant impairment in personal, family, social, educational, occupational, or other important area functioning and be present for at least 12 months.

Difference between video game abuse and addiction

Wood R. (2008) makes us reflect on the fact that very often the video game constitutes an important resource for people who experience different forms of malaise (or specifically of pathology), but which tends to be noticed first and identified as the cause of the problem for its evidence; eliminating the real causes of the problem, the video game becomes manageable and ceases to appear as a pathological habit. Therefore, we must be careful and check whether any addiction covers another pathology or psychic suffering secondary to it.

Specifically, it is useful to remember that the use of video games can be characterized by salience (the activity becomes dominant in the thoughts and in the daily life of the person), by the modification of mood, by tolerance (increasingly longer play times), withdrawal symptoms, internal conflict over addiction and relationship conflicts with significant people and relapse (attempts to stop activity abuse), (Griffiths 2005). The main challenge for researchers still consists in being able to distinguish pathological forms from situations of frequent use of video games that do not constitute an impediment to daily life (Charlton 2002).

It is useful to observe how it is, first of all, a particular type of video game that presents risks linked to abusive conduct. This is the MMORPG (Massive Multiplayer Online Role Playing Game); these gaming platforms allow you to live your own fantastic adventures online, getting to know other people through their avatars, joining and / or comparing with them. It is also useful to note that there are important differences between single player games, of whatever genre they are, and role-playing video games that allow you to build a character from scratch in order to relate to others in a shared virtual world (Cantelmi et al. 2010).

The stimulus to play is determined not only by a hedonic aspect but also by a reward mechanism. The player experiences easy and frequent rewards in the early stages of the game, later it is more difficult to achieve the same prizes and it requires more and more effort. This mechanism is gradual and is recognized as capable of conditioning behaviour to continue in the activity undertaken. The effects of intense use of video games on brain activity were monitored by Koepp and his collaborators, who recorded an incredible increase in dopamine, observed in an amount comparable only to that caused by the intake of amphetamines (Koepp et al. 1998).

CONSIDERATIONS

The studies examined highlight the positive use of video games for psychophysical well-being and socialization, as well as pleasant playful entertainment. They have also been used for rehabilitation, as well as therapeutic activities for visuospatial improvement,

cognitive activities, preventive activities for scoliosis, inadequate postural attitudes, in multiple sclerosis and , as in the video game Endeavor RX as a digital treatment in ADHD (FDA 2020). The video game, effective against anxiety and stress, also used for the relief of health personnel involved in the fight against COVID-19 was also recommended by the WHO, in particular the exergames, to help overcome the difficulties resulting from the social isolation.

The quarantine, the social distancing imposed for the containment of the pandemic, in addition to the fear of contagion, have profoundly changed people's habits and behaviour. Loneliness and boredom have encouraged adaptive behaviours that have seen a significant increase in the use of video games, particularly among adolescents. The WHO recommends moderate use of the same to maintain the right balance with offline activities in the daily routine.

People who make extensive use of video games should pay attention to the amount of time they devote to such activities, particularly when it excludes other daily activities, as well as any changes in their physical or psychological health and social functioning, in order to avoid an addiction. However, the abuse of video games, especially role-playing games with the participation of multiple players, isolation and social withdrawal, does not automatically lead to tolerance and addiction to online games. A combination of several personal and social factors, suffering and psychological distress characterized by depressive disorders, anxiety and stress seems to be necessary to cause addiction. In particular it was noted that there was a significant increase in the use of games and of IGD in adolescents, who had mental disorders as clinical predictors, during Covid-19.

CONCLUSIONS

The studies indicated suggest an interaction between isolation from Covid-19 and video games and not a direct correlation of cause and effect between them and the IGD. In our opinion, further in-depth studies and research are necessary. The daily and excessive use of video games, for a prolonged time, without a break could be detrimental to mental and physical health and as the WHO itself recommends, care must be taken when using them. Parents should pay attention to the time their children spend in this pleasant and useful playful activity, remembering that "too much is dangerous".

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Contribution of individual authors:

Maurilio Tavormina planned and designed the study; Romina Tavormina collected the data.

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