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Case Report

Case Report: Internet Addiction Associated with In-App Purchases and Microtransactions

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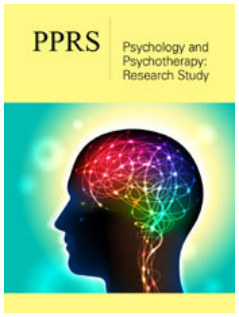

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Abstract

Gaming disorder is now recognized as a psychiatric disorder by the WHO. We present a case report of the patient who spent $20000 (AUD) over a four-month period on "in-app purchases" or microtransactions on two mobile phone video games. The report documents the mental distress and history of a patient with a disorder which appears to represent a hybrid of a video gaming disorder and a gambling addiction. The present case report reviews aspects of a novel internet addiction associated with microtransactions utilised by "freemium" funded mobile phone games. Such disorders are relatively new to psychiatry and their nosology and treatment is not well established. Our case report suggests that there may be a subcategory of addictive behaviours related to the larger category of internet addiction. Further research into the area of microtransaction related addictive behaviours is warranted.

Keywords: Internet; Addiction; Gambling; In-app purchase; Freemium; Microtransactions gaming; Internet gaming disorder

Introduction

The use of the internet has evolved and grown exponentially over the last twenty years. Reports have documented the rapid increase of internet users and associated internet related addictive disorders and harmful behaviours [1]. The digital experiences among the internet users involves and ever-growing amount of their attention, time, and, increasingly, money. Problematic or pathological internet use may be defined as problematic use of the internet, that results in impairment or distress.

Classification systems and treatment models have struggled to keep up with a range of new disorders and problems associated with computers, the internet and new technologies such as smart phones, tablets and virtual reality systems [2]. Pathological behaviours such as computer addiction, internet addiction, cyber bullying digital pornography, video gaming disorders are increasingly identified in treatment settings [3]. Young people and persons with pre-existing mental vulnerabilities may be at particular risk of developing such problems [4]. One concern has been the growth of freemium funding models which use in-app purchases or microtransactions rather than direct purchase models. While these business models have been extraordinarily successful, they are considered controversial and potentially predatory. The payment methods target often vulnerable people and attempt to manipulate users into unreasonable and excessive spending. Internet addiction has been postulated by several researchers as representing a distinct and separate disorder. In 2013 the American Psychiatric Association included internet gaming as a condition for further research in the fifth edition of their Diagnostic and Statistical Manual (DSM 5) [5]. More recently, the World Health Organisation included gaming disorder in their 11th edition International Classification of Diseases (ICD 11) [6].

Various terms have been utilised to describe internet related behavioural problems including internet addiction disorder, Pathological Internet Use (PIU), internet dependence, gaming disorder, virtual addiction, and compulsive internet use. The appropriate terminology

and boundaries of behavioural problems associated with internet use is not agreed upon. The nosology and classification of internet related disorders is controversial. It is unclear if such disorders should be classified as impulse-control disorders, obsessive compulsive disorders, addictions or secondary sequalae of an alternative primary disorder such as depression. The ever-increasing range of new technologies such as smart phones, tablets and virtual reality devices, creates further conceptual boundaries when trying to classify such behaviours.

Internet addiction and video game addiction are two overlapping, but also distinct behaviours. Internet addiction is the broader category, but not all gaming addictions necessarily requite internet access. Internet addiction can be separated into five major subgroups, based on the behaviour that is conducted [7]. These included sexual addictions, cyber-relational addictions, net -compulsions, compulsive web surfing and excessive computer game playing. Internet addiction can also be separated into categories based on the type of device utilised [2]. Many authors now separate mobile phone addictions from computer-based addictions [8]. New emerging technologies, such as virtual reality and augmented reality headsets, have the potential to create new categories of pathology or pathological behaviours.

There is now a growing body of literature documenting the prevalence and incidence of internet addiction across a range of populations. The incidence and prevalence range from 1% to 25% depending on the studies cited [9]. A more recent change to the internet and video game experience has been the dramatic rise in "freemium" payment models. Combining the words «free» and «premium,» freemium refers to is a business model that offers basic features of a product or service to users at no cost but charges a premium for supplemental or advanced features. The extra charges are often in the form of "in app purchases" or microtransactions. There are a number of types of purchases made with microtransactions. These may include random chance purchases, in game items that give advantages in the game or continuation items which allow the player to continue to play. Different purchases or indeed different types of games may utilise slightly different psychological mechanisms to encourage the player to spend more money.

Psychological phenomena such a loss aversion, impulse buying, fear of missing out may be involved [3]. These rewards may activate the dopamine system in much the same way that traditional gambling or even substance use does, with some authors postulating the involvement of biological as well as psychological reward systems. Some authors believe that predatory psychological techniques are used to manipulate the player into making such purchases [10]. There have been many reports in the media of persons spending large amounts of money on microtransactions in video games. A recent media report documented a man who spent over a million dollars on in app purchases in Game of War [11]. More recently actor Jack Black reported that his eight-year-old son had spent $3000 on microtransactions [12]. Despite this there has been little per reviewed scientific literature specific to micro-transaction type game addictions and no case reports that the author was able to locate. A case report and review has been presented here for a better understanding of the internet addiction associated with in-app purchases.

Case Report

Mr. AP was a forty-two-year-old man who was referred for treatment of depression by his general practitioner. He described a lifelong history of chronic persistent depression with intermittent exacerbations and had been receiving intermittent psychiatric and psychological treatment sign his early twenties. He revealed that he was under financial stress and identified that this was the main cause of his stress. He had spent over 20,000AUD (approximately 15000USD) on a game for his mobile telephone over the last four months. The money was spent on in-app micro-purchases. He identified two games that he had primarily spent his money on two games-Clash of Clans and Mobile Strike, though he had a history of playing a range of games. He recognized that his spending was excessive and unreasonable. He was married with no children. He was employed as an unskilled worker at an airport. He had few social supports and his main interests and hobbies related to video games and the internet.

He identified several factors that drove him to spend money. He wanted to be up there with the top players, and he felt pressure to do so. The games also involved being part of a Clan or group of people working together. Performing well and contributing to the group made him feel important and valued. He was a leader in his group and felt a sense of purpose and importance. He had paid for the purchases with a number of credit cards and was now struggling to make repayments. He presented in acute distress, with a worsening of mood symptoms. He has not revealed details of his spending to his partner. The main stressor identified was that his wife had been overseas during this period to look after his sick mother. This provided increased opportunity and time to play games. It also meant he was socially isolated and lonely.

He had realized that his spending was excessive and had attempted unsuccessfully to reduce his spending. When seen by the first author the spending had been occurring for approximately three months.

Developmental and psychiatric history

As a child, he had behavioural problems and struggled academically. He was never formally assessed or had counselling or treatment. He had a poor relationship with his father and described his mother in neutral terms. He denied sexual abuse. He began smoking cannabis at age 15 and used it regularly for over twenty years. After finishing school, he has held various semiskilled occupations. He has always played video games which have been his main social outlet. He has a previous marriage and a child from a previous marriage. He has one brother who suffers from severe chronic depression. He has suffered from depressive symptoms since his early adulthood and has intermittently been on

antidepressant medications. He had been treated by the first author since 2015. His personality was considered anxious and avoidant, with a strong tendency to dysphoria. At that time, it is documented that he was playing video games up to 20 hours per week. He was not however spending any money on them or gambling. The spending issues occurred in mid-2017.

Treatment

Mr. AP was commenced on sertraline and lithium. The dose was gradually increased to 200mg sertraline mane and lithium 500mg twice a day. Lithium blood levels were monitored. He was referred to a psychologist for Cognitive behaviour therapy on a weekly basis. There were no standardised or operationalized programs for treatment of such addictions that our team was aware of or had access to. The treating team devised a specific program tailored to the patient. We utilised activity management, motivational counselling, and treatment of the underlying depression. On review four months later, the patient reported having stopped his spending. He did not however cease video gaming but changed the mobile game he was playing. He continued to play telephone-based videogames for between one to two hours per night. He initially hid his spending from his wife and used a personal loan to pay his debts. He eventually agreed to disclose his behaviour to his wife who was supportive and was involved in the treatment process. He described and improvement in his mood with treatment and the cessation of his in-app spending behaviours.

He remained in treatment for 18 months. He then ceased regular treatment but continues to attend annual reviews. He continues to play video games on a daily basis for up to 20 to 30hours per week. Surprisingly, one of the games he plays is an online poker which has the option of free play, but also allows microtransactions. He spends an equal amount of time watching television shows but denies having returned to spending any money on in-app purchases. He remains an isolative person. He lost his employment due to the covid lockdown, and during this time spent of games increased, but he did not return to spending money on in app purchases. He remains on sertraline, but his lithium has been ceased. He has recently returned to employment.

Discussion

Epidemiological reports have identified many psychosocial factors affecting the prevalence of internet addictions and harmful behaviours [13]. The presence of comorbid psychiatric illnesses or symptoms shows a strong association with harmful internet usage, being both a risk factor for and a consequence off internet addiction [2]. Mr. AP had a pre-existing history of mental illness including substance which may have made him more vulnerable to developing internet related addiction. Microtransactions (abbreviated as mtx), represents both a funding model for software developers and a psychological tool for altering human behaviours. The global online microtransaction market was estimated to be worth $34.59 billion USD. It is expected to grow at high levels, in the aftermath of the COVID-SARS global lockdowns and to reach $51.09 billion in 2025 [14].

Concerns have been raised that such business models are predatory and potential take advantage of the most vulnerable [15]. Regulation of the industry has been raised by a number of observers as essential but has been hampered by political and practical issues [16]. In the case of Mr. AP, he described spending money on upgrades for his army. This helped him win the game. The purchases also can have a random component. For instance, he could spend money on a mystery item. This seemed to add a classical gambling component to the purchases. The game also involved a social component as Mr. AP was in a group or clan or people. He described a sense of duty to his colleagues to do well in battle, which was one of the drivers of his purchases. He also described a desire to achieve and be the best, indicating a competitive component.

In regard to playing time, he described spending and average of two to three hours per day, but up to up to 8 hours a day on the weekends. Mr. AP had previously tried unsuccessfully to reduce his purchases and his playing. The main criteria for addictive behaviours appear to have been met. His biggest concern however was the financial cost, which had been causing extreme stress on him. Mr. AP was able to successfully cease his microtransaction purchases, however he continued to spend significant amounts of time playing similar video games, including online poke. The conceptual boundary between internet behaviours solely based on financial cost is complicated. It could be argued that Mr. AP was not successfully treated since other than the amount of money spent, his gaming behaviours seemed essentially unchanged.

This might indicate that there are distinct subsets of behaviours within the general category of internet or video game addiction which represent distinct nosologically entities. Addiction to microtransactions may represent a distinct and separate addictive behaviour or subtype of behaviour within the larger rubric of internet addiction. It may indicate that behaviour substitution techniques or harm minimization could be utilised in certain type of internet addictions. It can be postulated that there are different harmful components to internet addiction. Excessive internet use can cause harm in a number of ways independent of a financial cost. Internet addiction is associated with reduced quality of life, increase depression and poor academic performance [17]. Not all types of internet addictions are equally harmful, much like not all substance addictions are equally pathological. It remains difficult for researchers and clinicians to define the boundaries between normal internet use, excessive use and internet addiction [1].

It is interesting therefore to postulate what factors are important in the transition from free internet usage to high-cost behaviours. Identifying these factors may be of value in helping persons avoid falling into financial ruin. Ideally, of course, treatment of internet disorders would likely involve reducing or eliminating time spent on the internet or gaming. However, in many cases, harm minimization may involve changing rather than eliminating or reducing internet or gaming type behaviours. Certain populations may be most vulnerable to in app purchases. Children are especially easy targets [10]. A growing number of organizations have been calling for greater regulation of micro transactions. Regulation is

likely to be complicated by the difficulties inherent in regulating internet content and traffic. A number of countries have begun to trial legislation to curb internet addiction especially among the young. China has recently introduced curfew to video gaming among children. Belgium and the Netherlands, notably, have recently legislated to ban certain types of microtransactions.

Treatment recommendations for such addictive disorders remains unclear. To our knowledge, there are no published treatment guidelines for the treatment of smartphone or online addictive behaviours. In this case, we utilized standard pharmacotherapy and CBT with some success. The long-term prognosis is unclear. Internationally the authors are not aware of any published treatment guidelines, though we are aware of a growing number of researchers who are attempting to address these issues. The role of pharmacotherapy is not established. We could locate no placebo-controlled studies utilizing pharmacotherapy for internet addiction. We were able to locate a small number of case reports utilising medications including antidepressants, mood stabilisers and antipsychotics [18].

Whether there should be differing treatments for different types of internet misuse is unclear. Ultimately, we would hope to have differing treatment modalities specific to different types of internet addiction or misuse. At the time of writing, much of the world has been in lockdown due to SARS-Cov-2. There have been lockdowns throughout much of the world and significant social changes. One can reasonably predict that internet use and video gaming has significantly increased as people find themselves with more time on their hands and less access to alternative behaviours. One could predict that there will be an increase in internet related addictions, directly attributed to the pandemic. As the lockdowns are removed it is possible that there will be a large number of people who relied on the internet for entertainment and distraction [19]. How many of these people will go on to develop disorders or pathology is unclear. It seems likely however that internet and technology-based disorders will only increase in prevalence and importance in the following decade.

Conclusion

The present study has represented the analysis of the case report regarding the internet addiction associated with in-app purchases. Addiction to in app purchases or microtransactions represents a new type of pathological behaviour brought on by the technological advances of the internet. It is a complicated behaviour, with features of gambling behaviours, internet addictions, habit disorders and mood disorders. The case report indicates that harm reduction models may be viable in such disorder. It is likely that such disorders are both under diagnosed and under treated.

The starting point for all clinicians is to be vigilant is looking for internet addiction in their patients and to ask about their internet behaviours. Technology related mental health disorders will continue to grow in both prevalence and significance over the foreseeable future. New technologies are never free of unintended negative consequences. Developing a better understanding of these disorders will ultimately lead to better treatment and prevention of internet addiction.

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