

PATHOLOGIC COMPUTER GAMING: CASE DESCRIPTION AND ANALYSIS

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Abstract:

This study describes individuals who identified themselves as excessive computer gamers. It attempts to define excessive computer gaming as a clinical syndrome and describe associated symptomology. This study also provides a structure upon which to understand the syndrome in clinical practice. This research is based on data from 33 individuals who replied to a self-selected, open-ended survey. The survey was advertised on international computerized bulletin boards devoted to computer gaming. Responses were via e-mail. 20 of the 33 individuals (61%) met the modified DSM-III-R criteria for a tentative diagnosis of Computer Gaming Dependency. 14 of the 33 (42%) endorsed at least one physical finding associated with computer gaming (eye strain/pain, hand pain, body/joint pain, or headaches). 11 of the 33 (33%) report marked sleep schedule shifts associated with gaming. As in much of the preceding research, subjects were largely male, in their 20s to 30s, and highly educated. Predominant physical symptomology consisted of a changed sleep pattern, headaches, exhaustion, anxiety, craving, irritability, weight changes, eye, hand, and joint aches. Excessive gaming is seems associated with withdrawal from one's usual friends and family, arguments with significant others, a decline in the quality at one's work or school, and increased interaction with "virtual" friends.

Dissociative-like experiences with time-loss during game play are commonly reported. This initial study of excessive gaming presents strong evidence for the existence of an addictive syndrome among computer gamers.

INTRODUCTION:

In November, 1982, Surgeon General C. Everett Koop stated that video games "tend toward violence in their tone . . . and produce aberrations in childhood behavior" as children become addicted "body and soul"¹. One day later, he was forced into retreat, stating the opinion was "my purely personal judgment and was not based on any accumulated scientific evidence."²

Indeed, over 10 years later there still is little evidence in the literature to support the Surgeon General's original comments. Whereas anecdotal claims of computer addiction abound in the popular press, few case studies have found their way into the medical literature. There are three notable exceptions.

The first report may have sounded humorous to many physicians. In 1982 Ross issued a brief case report as a Letter to the Editor describing three males, aged 35, 27, and 25, who "reported a sharp increase in time, energy, and money devoted to playing Space Invaders in the immediate weeks before their respective marriages." He noted that the activity ceased following the marriages.³

The second report, by Keepers in 1989, was a much more detailed psychoanalytical synopsis of a case. The case involved a 12 year old boy who was pathologically playing arcade games. The child's game play was associated with truancy, discontinued friendships, new friendships with other video gamers, and stealing for playing money. The child's family structure was chaotic and the game play was thought to be an adaptive response to the psychosocial situation.⁴

Also in 1989, Shotton published the third and most extensive work to date on the issue of computer addiction. Recruiting from newspaper ads and articles, radio talk shows, and computer bulletin boards, she gathered 121 subjects. 69 males and 6 females remained in the study to receive all of her testing instruments. These individuals were matched to non-dependent computer owners (n=75) and a group of non-owners (n=75) on the basis of age, sex, and educational level.

Shotton reports that "computer dependents" are largely male and well educated. Compared to the "normal"s, they spend significantly more hours on the computer, have a more difficult time quitting when at the keyboard, skip meals, have distorted sleep schedules, and that they frequently lose perception of the passage of time. They own more hardware and have more money invested in it. They are more likely to own modems and have access to computer networks. Her sample consisted of largely programmers with "few" game players. However, "many owned hundreds of 'pirated' games". Shotton also reports that "computer dependents" lost interest in old hobbies and withdrew from family activities and friends. Marital conflict concerning the computer use appeared to be common although comments in her text minimize their importance. Shotton summarizes her findings by stating that "computer dependency" exists as a syndrome but that it is a largely adaptive and desirable state whereupon previously isolative people can feel comfortable and excel. In addition, she argues that the personalities of these individuals are not so different from that of devoted hobbyists or artists. She does not believe the syndrome pathologic.^{5,6}

In addition to the above three studies, there have been a small number of research projects exploring psychopathology among school-age video game players. The designs were largely cross-sectional. Findings were

sometimes contradictory but rarely impressive.^{7,8,9,10,11,12,13} Also described and of note is the phenomena of video-game evoked epileptic seizure.¹⁴

Computer games have evolved an enormous amount since all of above studies were performed. Stereo sound, high resolution color graphics, and input devices like joysticks are commonplace. Storage space, both via hard disk and, now, CD ROM, have allowed games to increase in size and complexity. Games are commonly 10 to 20 times the size of programs written less than ten years ago. Microprocessor speeds and the memory directly available to the computer have markedly increased allowing one to use vastly superior graphics-drawing routines. It is the author's belief that all tend to make the games intellectually, visually, and audibly more appealing.

The electronic medium is now big business. "Between 35 and 50 million US. homes have a video game console. That number comprises at least 90% of homes with children and from a third to a half of the 95 million households in the country." Video games accounted for a retail market of "almost \$5.5 billion" in 1993. Computer systems, usually more versatile than devoted gaming consoles, have been estimated to number over 135 million worldwide. About 30 million of these are installed in US. homes. Computer-based games accounted for an estimated sales of \$342 million at retail in 1992.¹⁵

If one can become obsessed with relatively primitive games like Space Invaders and Ms. Pac-Man, what is possible today?

This paper attempts to document cases of "computer gaming addiction." Cases were characterized in regard to content and specific symptomology. In addition, DSM-III-R criteria for substance dependence were modified and applied to the cases.

DESIGN:

A board message with a subject line titled "Research - excessive game playing" was posted to 7 Macintosh and IBM game playing newsservices on Usenet. The content of the posting described a study examining "addictive computer game playing" and asked for "descriptions from individuals who believe they have difficulty controlling the amount of time and/or effort they spend playing games". Specifically, users were asked to comment on the "marital / social impact of gaming", the "physical symptoms which accompany excessive playing", the details of "past attempts to stop problem gaming", the "frequency of 'addictive'-type game

playing”, the “monetary impact of gaming”, the “length of time spent gaming”, the “experience and attraction of game playing”, or “anything else which you think important but not listed above”.

Respondents e-mailed their completed surveys to the primary investigator. Only data received via e-mail was included in the study. The free-text responses were divided into two types: Informational or Subjects. Informational responses were defined as those responses which did not include any experiential data and, rather, were postings which were to be helpful or hostile to the study (i.e. contacts, references, reprints, criticism, etc.). The remaining letters were considered coming from “Subjects”.

Additionally, cases were subdivided into first-person accounts or descriptions of “friends”. Descriptions of friends were omitted from the dataset. If a letter described both a first-person experience and that of a friend, the data relating to the friend was not used.

Cases were initially read by the primary investigator. Topics which subjects discussed in their free-text responses were noted separately. All responses were then read a second time, again examining and noting topics which had been discussed. The two lists of issues were then condensed and the responses were then read a third time. Total occurrences for each topic were summed. Any descriptive category which was endorsed by less than two subjects was eliminated from further study; all other categories were analyzed.

A case definition of “gaming dependence” was created by modifying the DSMIII-R criteria as seen in Table I. Similar to the clinical definition of substance dependence, if any three of the nine criteria were endorsed the individual was considered as suffering from pathology.¹⁶

Table I: Case Definition of Pathologic Computer Gaming

- A. At least three of the following:
1. computer games often played over a longer period than the person intended.
 2. persistent desire or one or more unsuccessful efforts to cut down or control computer gaming
 3. a great deal of time spent in activities necessary to get the game (piracy, reading gaming magazines, etc.), playing the game, or recovering from its effects
 4. frequent intoxication or withdrawal symptoms when expected to fulfill major role obligations at work, school, or home (e.g., does not go to work because too exhausted, plays games instead of going to school)
 5. important social, occupational, or recreational activities are given up or reduced because of the game use
 6. continued game use despite knowledge of having a persistent or recurrent social, psychological, or physical problem that is caused or exacerbated by the game playing (e.g., keeps using games despite family arguments about it, wrist pain, or feels “exhausted”
 7. marked tolerance: need for a markedly improved computer system equipment and/or more hours of game playing time in order to achieve intoxication or desired effect, or markedly diminished effect with continued use of the same system equipment and/or hours spent playing.
 8. characteristic withdrawal symptoms (see Table V)
 9. Game often played to relieve or avoid withdrawal symptoms.
- B. Some symptoms of the disturbance have persisted for at least one month, or have occurred repeatedly over a longer period of time.

All letters were read a final time by two of the researchers and graded using the modified DSM-III-R criteria. Each researcher was initially blinded to the other's responses. If a discrepancy in grading occurred, the researchers discussed their categorization. If after discussing their results a discrepancy still existed, only those criteria judged to have been met by both investigators were used for analysis.

No hypothesis testing was performed.

Some basic demographic data was collected in a follow-up mailing. Otherwise, all data in this paper relates to the original, identical, questionnaire.

RESULTS:

The actual number of individuals who read the bboard message is not known. Of the Usenet group posted to, the busiest receives approximately 100 bboard messages per day. It is the authors' belief that several thousand users saw the announcements.

49 e-mail responses were received. 13 responses were informational. Of the remaining 36 letters, 32 were first-person accounts, 3 were descriptions of a friend and 1 included both descriptions of a friend and first-person experiences. The 33 individuals carried forth in the study are described in Table II. As indicated in the table, not all individuals provided age and/or sex information.

Reading through the dataset resulted in 26 topics of interest being created. These categories are listed in Table III. Table III also summarizes the individual and accumulated data.

14 of the 33 (42%) who gave first-hand data endorsed at least one physical finding associated with computer gaming (eye strain/pain, hand pain, body/joint pain, or headaches). Table IV details the physical symptoms subjects associated with computer gaming. 11 of the 33 (33%) report marked sleep schedule shifts associated with gaming.

Table V summarizes the psychological manifestations which subjects described occurring near the end of their game play and during the following day(s).

Table VI describes the abnormal thought some subjects reported as being associated with actual game play.

20 of the 33 individuals (61%) met the modified DSM-III-R criteria for a tentative diagnosis of Computer Gaming Dependency. The individual and accumulated data for the DSM-III-R categories is listed in Table VII.

Table II: Demographics and Response Characteristics

First-hand Accounts

(n=33)

Age 24.4 (s.d. = 5.5)

min=16, max=44

Sex 29 males, 2 females

no response 2

Letter length 441 (s.d. = 343)

(words) min=52, max=1,533

Average # of 6.24 (s.d. = 3.49)

categories min=1, max=14

endorsed

Table IV

Physical Symptoms Associated with Excessive Gaming:

Sleep schedule shift to allow for late night gaming

Difficulty focusing / red eye

Hand, wrist, or finger pain

Weight gain or loss

Lower back and/or joint pain

Headache

Nausea

Table V: Psychological Symptoms Associated with Excessive Gaming:

Craving

Exhaustion

Distracted and unfocused thought

Anxiety

Irritability

Increased energy

Depression

Disturbed sleep

Isolative Behavior

Table VI: Reported Symptoms of “Intoxication”:

- Disassociative-like state
- Extremely focused thought
- Reduced awareness of basic drives
- Reduced motivation to participate in other non-gaming tasks
- Rf~rilins~X1 slmatinnsI rpenncs~c

ANALYSIS:

This study presented a surprisingly consistent picture of excessive gaming. It is remarkable that without prompting for specific “symptoms” many users nevertheless described similar gaming experiences, often almost word for word.

Equally striking was the similarity of the symptomology with that normally ascribed to drug dependency. While quite controversial within the psychiatric community, many researchers believe in the existence of a unified “addiction syndrome” which includes both drug use and many forms of compulsive behavior. This study seems to give evidence for such an entity^{17 18 19}

The following e-mail excerpts should be read in that context. Quotes with errors in their spelling or grammar are included without correction.

Excessive Amounts

The first DSM-III-R criteria describes using a substance in “larger amounts” or “longer than ... intended”. 13 of the 33 subjects (39%) volunteered their concern that at some point in their lives, their gaming was excessive.

(24) Computer gaming...is the danger zone. As I was doing it recently, as soon as the house would get quite, (baby to bed or napping, wife out for a walk/work, etc) presented a perfect opportunity for gaming. Of course, with high involved strategy games, an hour is rarely enough. I could easily waste away an entire afternoon of responsibilities without thinking twice about it, and evenings could even follow. All this causing an extreme strain on the marriage, and only recently have I broken my ties with my machine to work on strengthening those with my family. [sic]

or

(21)Every day! Wake up, get a coffee, start playing games. I have played a MUD for 30 hours straight. I have played Wolfenstein and related games for 8 hours straight. Civilization for 8 hours. You just lose track of time...

It is interesting to note that other researchers have postulated the existence of a common dissociative-like “high” in behavioral and substance addiction syndromes. Symptoms which have been reported include a trance-like state, feeling like a different person, feeling like an observer, or a memory “blackout”.^{20~ 21} While this study does not have a control group for statistical comparison, all of the symptoms reported above frequently occurred.

For example:

(13) It depends on the type of game that I play. Some games are quite active in terms of screen motion, 3-D type games, and flight simulators especially. I sometimes get involved in the games to the point of “being inside” the game, as it

wsZr^ . . .

I have had problems with my wife because I tend to get very involved in gaming, and computers in general. However, we were able to work through our problems, and I think that we’re better off for it. Making a layman’s observation, I would say that it appears to be a problem with concentration. Not a lack of it, but rather the opposite. People like myself tend to get *so* involved in a game, that they literally block every external stimuli not immediately involved with the game. To an outside observer, this appears as if they are being consciously ignored, when in fact it is not a conscious process.

Or,

(19) The time spent gaming is enormous. I can sit in front of a machine with a good game and play for hours. It never seems like hours are passing when I am playing, and I am always amazed at how much time has passed when I finally do look up at the clock.

The game-type which people seemed to have trouble with varied. While some found controlling their time more problematic when playing “rpg games”, others describe action games or strategy games as posing problems. Often, however, there was a specific preference voiced:

Attempt to Control Time Spent Gaming

The second criteria was endorsed by 18 of the 33 subjects (55%). They indicated that they had made or felt they needed to make some attempt to control the time spent gaming:

(30) I have attempted to stop playing about twice. Both times I stayed away for about a week, and went right back in, with a swing back of excessive playing....there is no other medium or situation I have known that gives me what the game playing has. So I do not intend to stop it; just trying to control a little more

Then, there are those that have not attempted to stop but approach the computer with caution: (1) “I never tried to stop it. only to control it.” An interesting observation came from an individual who describes themselves as (32) “a recovering alcoholic and addict” who, because of a job not involving a computer, is “only able now to spend 45+ hours in front of my computer”:

I do not believe that computer game addiction is as debilitating as drug and alcohol addiction. This is obviously tainted as I said the same things when confronted with my other addictions. I have just rationalized my condition to the point where I am fully aware of it but refuse...to change my behavior. As with any addiction it will probably take an act of God to break it completely. What I am saying is that right now I can control it, but who knows in six months.

Much Time Spent on Computer

The third criteria describes much time being spent getting, taking, or recovering from the substance. 22 of the 33 subjects (67%) met this criteria.

(15) [I play] from the time I get home (5pm) till about 9 or 10 an night, except on holiday breaks when I stay up all night playing computer games.

Many others also addressed the issue of time; one individual estimated that in (7) “the course of a week, I have totaled up an average of 37 hours playing games”. Another wrote that they (11) play “4-8 hours at a stretch”. An adolescent who described hand pain after playing keyboard driven games reports (1) “I’m 16 and my parents want me to get out more often, but I don’t”.

While not explicitly mentioned in the DSM-III-R criteria for dependency, rituals are commonly reported with substance use. One computer user wrote as follows:

(32) I have a ritual...which I go through ever time I purchase a game. I first very carefully remove the shrink rap. Then I open the game and actually take a smell of the insides. It is like that new car smell effect. I then drive home and install the game right away. I do not read the documentation until I have played awhile. I then usually sit down that night and read the documents until I fall asleep. Then I play the game until I have decided it is not worthy of my time or until I drop from exhaustion.

Interrupts Other Obligations

The fourth criteria describes the substance dependency as interrupting major role obligations such as school and work. 12 of the 33 subjects (36%) reported their grades and/or work were adversely affected by their gaming habits.

(19) There were some extenuating circumstances but one of the reasons I got laid off was because I brought my Macintosh computer to work with me and played games on it all day. That was addicted. Usually it is the role playing games that get me the worst, but puzzle games like S.C. Out and Oxyd are just as bad.

Computer gaming has been banned at certain work and school sites secondarily to a perceived drop in worker productivity.^{22, 23}

Withdrawal from Society

The fifth characteristic finding is the withdrawal from “social, occupational, or recreational activities.” 15 of the 33 (45%) reported such a retreat from “Real Life” to “Virtual Life”.

(14)I use the Internet for a lot of my social interaction...Most of my music friends have been replaced by computer friends and pirate acquaintances....I don't like visiting at others' residences because they do not have any computer with Internet access.

This, however, is a more complex issue than it first appears. Although some of the individuals in this sample indicated they play single-player games, many noted that they enjoy network games. Network gaming almost always involves the participation of other gamers - either in competition or cooperation. Rarely, if ever, are these other gamers actually seen. One popular form of network game is an outgrowth of Dungeons & Dragons (D&D) known as a MUD - a multi-user dungeon. Communication over the network is via keyboard with the emotional content of speech being expressed via “emoticons” and written words. The resulting relationships are almost universally described as extremely intense and powerful:

(30)It is, in a way, much easier to be honest and open emotionally to others in the game [a MUD] than in real person. This has been a strong attraction for me. I have especially met one person I could truly share my thoughts and emotions without reservation; as it happens every so often, I fell in love with this person, without ever so much as hearing his voice or knowing what he looks like.

and,

(27)My first couple of years in college I got involved in something called MUD...It got to the point for myself and my friends that MUD became almost everything we did. There is no question in my mind that for that time period I was addicted. [sic]

An interesting and unique feature of the computer interface is the common ability to create pseudo-personas at will, limited only by one's fantasy:

(7)The last thing that I would add to the above information is a psuedo-persona that I use when playing on any of my games, computer or other-wise. His name is Aylah. He is a man of low moral character and he changes his race as the game allows. His wisdom is great as he has played an extraordinary amount of games. He was originally just my favorite AD&D character, but when I needed a 'character' for rpg games such as a 'mud' or Ultima (?) I would use him. He really has taken a life of his own and I try to make him as widely known as possible. He loves publicity and would want his name published if you feel he is interesting enousth.

Thus, network games do have a significant social component, one that is quite literally new to this earth. Some have argued that this social aspect distinguishes gaming from more pathologic "addictions" - that, indeed, gaming forms a positive influence on otherwise reclusive individuals by reattaching them to society.⁵ The importance of this tenuous link to others is debatable; it is notable that substance abusers also frequently form social groups with those that share their social habits.

Arguments and criticism from others is another measure of social withdrawal. 10 of the 33 (30%) users reported such friction.

Continued Use Despite Adverse Affects

The sixth criteria describes continued substance use despite the awareness that it causes recurrent problems in their lives. 21 of the 33 subjects (64%) met this criteria. Sleep schedule shifts were reported in 11 (33%) of the subjects. A typical example:

(27)I would say that my sleep was disturbed since I was staying up till all hours of the night playing games. I found that I would dedicate inordinate amounts of time and energy on games. Energy that should have gone toward my studies.

14 of the 33 cases (42%) reported a physical malady, other than sleep schedule shifts, related to their gaming:

(13)Personally, when I've played for long periods of time I experience the following symptoms:

1) Blurred vision

2) Dry (burning) eyes

3) A general weakness, as if I've expended all the energy that I have

4)Alternately, a feeling of incredible nervous energy, akin to the feeling you get when you've had too much coffee.

Interestingly enough, whereas my normal bedtime is usually 12AM, I have often played games as late as 3 or 4 AM with no feeling of fatigue.

Headaches, hand pain, and visual changes were frequent complaints:

(4)The physical effects of playing for long periods manifested in very sore hands...I also would get watery eyes from 'intensely' watching the screen for hours. I work with computers all day and don't suffer any eye effects because I don't stare at the screen like one does when one plays arcade games....I would get headaches occasionally, but I often get headaches when I stay up late. I would anxious because while playing this mindless monster my mind would working overtime thinking about classwork, or missed sleep, or how much time I was wasting. Physically weak kind of goes along with being tired.

and

(11)Weakness, cramps, general feeling of being "washed out" or sick. Difficulty in sleeping often follows.

Marked Tolerance

In the e-mails received, tolerance proved to be a more difficult symptom to delineate. Only 2 of the 33 (6%) cleanly met this criteria. There were no clear descriptions volunteered of initial brief play followed by increasingly more hours of game play. There were, however some descriptions of an initially tantalizing game turning rather unexciting, despite the players continued use of it. For instance:

(4)On any given night during my addictive period I would stop playing very late in the evening usually. I guess I'm not sure what caused me to stop probably a combination of sore hands, watering eyes, and anxiety about getting enough sleep balanced out by the desire to play 'just one more' game. Its odd because my belief was that by playing 'one more game' I would get that ever elusive high score, but as the night wore on my game scores would decline because of fatigue, and the physical handicaps mentioned above.

Descriptions often makes mention of goal oriented motivation. For example, one subject noted (1)"sure, it gets boring after a while but I guess I have the urge to finish or beat the game." Despite the game no longer being enjoyable, one continues to commit hours to playing it.

Another way to indirectly measure for tolerance is to examine the subject's computer software and system buying history. One may compare this to shifting one's habit to a more potent drug. As one attempts to meet increasing internal demands for a "better" gaming experience, they may upgrade their entire computer system. There are many different upgrades which are engaged in. Common upgrades today include purchasing a newer microprocessor, a higher quality monitor, a sound card and/or speakers system, a CD ROM, a gaming card, more RAM, a joystick, more hard disk space, or a entirely new system.

(32)I began playing video games back when pong came out. I am 23. I have had pong, Atari 2600, Intelvission, Atari 400, Atari 800, NES, and then finally my IBM clone. I had over 50 cartriges for the Intelision alone and that was when I was 10 or so. At fifty dollars apiece, that is quite alot of money. When I had my Atari's I accumulated over 1000 games (mostly stolen) and spent hours and hours of my teen years playing. The situation is mostly the same for my IBM. Next to me now is a huge stack of purchased games which have cost me over \$2000 dollars in the last 18 months. Also, I have two sound cards (Roland SCC-1 and SBPro, \$600) and a incredible sound system (\$2000).

Frequently, the "leading edge" gaming software is designed to run at its best on the premiere system setups, pushing the system's hardware to new limits. The result is that one often cannot get the newest software to run on older systems or, if it does, it operates poorly. Thus, one must upgrade or be left playing with less advanced games. Said one subject, (33)"I have even considered taking a semester off of collage to afford a computer for the sole reason of playing these [newer] games."

The upgrades seem to make the experience more satisfying, as demonstrated by this quote:

(25)Combined with a musical score and digitized dound effects, all for the user's benefit, the lure of "just one more" puzzle, or combat scenario, tempts one to continue playing. For those actively involved in the game, the "rush" becomes similar to a winning streak.

While not necessarily related to the issue of tolerance, it is worth emphasizing that there can be substantial costs associated with gaming.

(30)Before going into it, let me mention most of my game playing was done on a commercial network, which cost me an excessive amount of money, specifically, in the order of \$8000 or more. I know for sure that since April this year,I have spent \$2800. I remember having spent \$1200 a month in November last year. On the average I think I have spent about \$600 a month other times. This, though a little on the high end, is not unusual among players. Because of this monetary burden, I have finally started to refrain from logging on for games there, and have moved into Internet MUDs, which is free. But the gaming has not taken on the same personal addiction yet, thankfully. So maybe you should consider me an addict in the process of recovery.

Withdrawal Symptoms

4 of 33 subjects (12%) reported withdrawal-type symptoms. Most individuals did not address the issue of withdrawal directly, except for noting physical and mental symptoms which seemed directly related to the gaming session. These physical complaints are listed in Tables IV and V. Most have already been

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However, one symptom not yet detailed is craving - similar in character to that seen with drug use. One has the sense upon reading of attempts to control their gameplay that the games are quite alluring and powerful. Take, for example, the following:

(19)Trying to stop has been the hardest part. I never really understood why people couldn't stop smoking, drinking, that sort of thing until I thought of it in terms of gaming. You try to stop, but you think about it all the time. Trying to figure out new puzzles or strategies while you are at work, or driving down the road, etc. Then you rationalize by telling yourself that you aren't hurting anyone and that it is a normal form of recreation, so why should you stop?

Or, highlighting the game's power,

(33)By getting to involved in the game, I have been violently angry and had to stop playing. Basically I get so wrapped up that there is no separation between real life and the game. Or what distinction exists is backwards. Instead of using the game for escapism, I use reality for escapism. [sic]

Of note, one individual, quoted immediately below, noted a mood disturbance associated with withdrawal. Although not discussed in regards to onset, two individuals reported serious episodes of depression when “addicted”.

Uses Games To Relieve Withdrawal Symptoms

There is one individual who addressed this issue.

(33)So in answer to the question, I felt tense when I wasn't playing. Then I would get on and feel my muscles relax and my mind at peace.

As already discussed, the issue of withdrawal symptoms is otherwise not well delineated by the data.

Use For At Least 30 Days

The final criteria is that the symptomology be present for at least a month or that it repeatedly surface over one's life. Here is one of the few issues in which some distinct differences among gamers appeared. One subject reported:

Most, however, seemed to describe an episodic and binge nature to their problems:

(4)Well I don't think I am severely addicted to game playing but I have gone thru some rather intense periods where I couldn't turn the computer off. Some games just take you over, you play them until 2 in the morning... The game Tetris had control of my life for about a month back in 1990. ..I would play Tetris for hours on end, sometimes for 10 hours in a row. My eyes would start watering, I would get incredible carpo tunnel (spelling?) in my hands and I 'knew' I was wasting time. Yet I had the feeling that with just one more game I would get a high score and could then quit. I remember playing until 3 in the morning and then going to bed only to have my dreams haunted by falling tetris pieces. When you play in your dreams you never loose, pieces just keep falling all night long and there is no end. You make great plays, you find places to put the blocks where you would never think to put them while awake. This was the nightmare of game addiction for me. When you 'waste' time during the day playing a game it is 'okay' because you can turn it off when you really need to, but when the game invades your sleep, it is then when I would say that you are seriously experiencing the ill-affects of game addiction. [sic]

or

Or, commenting on the average time spent gaming,

(23)But in fact I'm not sure that averae is right because sometimes I don't play for weeks at home and some others I play hours and hours. I almost can play a whole weekend when I'm involved with some particular game. In fact the problem is when I've started one exciting game, I only have this in mind until the end. Then I can spend several days not playing.

Conclusion:

This initial study of excessive gaming presents strong evidence for the existence of an addictive syndrome among computer gamers. The syndrome can be defined using modified criteria for substance abuse. This study, however, does not indicate the disease prevalence.

Of note, the findings are consistent with the previous three case studies present in the literature. Where this study differs is in the description of such behavior as a general syndrome and as being pathologic.

In this study as in much of the preceding research, subjects have been largely male, in their 20s to 30s, and seem to be highly educated. Predominant physical symptomology consists of a changed sleep pattern, headaches, exhaustion, anxiety, craving, irritability, weight changes, or eye, hand, and joint aches. The psychosocial impact of gaming dependence is evidenced in withdrawal from one's usual friends and family, arguments with significant others, a decline in the quality at one's work or school, and increased interaction with "virtual" friends. Dissociative-like experiences with time-loss during game play are commonly reported.

The limitations of this study are important. Of immediate concern is the sample source, Usenet on the Internet system. At the time this study was performed, access to this resource was most commonly found at colleges. However, some computer oriented businesses and computer literate users also had access nodes. Thus, this study has a strong bias for selecting educated young adults or computer industry employees as subjects. In addition, most MUDs reside in the

internet, so individuals who play them are likely to be over represented in this sample. As RPGs are similar to MUDs, they are also likely to be over sampled. A fourth point to note is that the sample was self-selected and individuals unaware or in denial of their illness are unlikely to have been sampled.

Finally, a last consideration which deserves a great deal more attention. While this study furnishes good evidence for an addictive syndrome involving computer gaming, it is not at all clear that the object of the addiction is actually the game. Instead, the addictive agent may simply be the interaction with a computer or computer network, in and of itself. Although not reflected in any study, it is this author's experience that the "chats", "CB Channels", or "IRC" which appear on the major networks all have a large contingent who describe much the same symptomology as gamers. Indeed, perhaps the "chats" are a larger problem as network time online is expensive and, over a month, large bills can accrue. Recently this author was contacted by one individual who reported 287 hours online in one month.²⁴ Another two individuals reported monthly bills that equaled or exceeded \$700.^{25 26}

With the computer age well upon us, it is reasonable that we examine its impact on human health and illness. Some therapists have suggested computers networks be used to deliver some mental healthcare ^{27 28 29} Others, like the authors of this paper, have expressed words of concern. ^{30,31}

Future research into the addictive-like syndrome defined in this paper would be useful. As the stigma and social consequences associated with this syndrome do not appear to be as devastating as those frequently seen in drug

addiction or pathologic gambling, this illness may prove quite useful to researchers studying addiction. The “addictive” agent is not physiologically toxic and is readily available to researchers. Moreover, it is hypothesized that the patients are more likely to be functionally intact and compliant with medical treatment.

First, however, additional studies are needed. Of particular importance, a well designed cross-sectional study would be useful to determine disease prevalence. Longitudinal studies to determine natural history would also be very informative. Studies for co-morbidity with other mental illness is also an area which the authors feel is promising. In general, research into the dependencylike syndrome might yield better results if adults were selected as participants; the syndrome may not be clearly distinguishable in children.

In the meantime, we suggest the questions found in Table VIII be considered when gaming dependence is a possibility. The questions can easily be broadened to cover general, non-work related computer use, such as chatting.

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