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GAMING ADDICTION – PSYCHOLOGICAL, PHYSICAL AND SOCIAL EFFECTS



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Abstract

In recent years, a majority of preteen, youth and a moderate percentage of adult population has been the victim of a fast-growing public health problem known as “Internet gaming disorder (IGD)”. This disease affects physical, psychological and social aspects of individuals and this often leads them to severe outcomes. As of now IGD has been acknowledged as a separate diagnosable disorder in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition. Currently there is not much data available on this issue that can help us foresee or recognize several sociodemographic, medical, and other risk factors that affect individuals that have already or are vulnerable to develop this disorder. The goal of this thesis was to raise an awareness of IGD, to uncover the aspects that help this issue spread or develop, to understand the consequences of IGD on the mental and physical health of affected individuals and discuss some treatment strategies that can be helpful for the rehabilitation purposes. The goals were achieved by conducting an online survey among the gaming communities of Turku and a few gaming communities on Facebook. The findings confirm the magnitude of effects due to IGD as feared.

KEYWORDS:

Social, Mental, Physical, Gaming, Internet Gaming Disorder

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LIST OF ABBREVIATIONS

IA	Internet addiction
IGA	Internet gaming addiction
IGD	Internet gaming disorder
MMORPG	Massively multiplayer online role-playing games
RTS	Real-time strategy
RPG	Role-playing game

1 INTRODUCTION

In 2003 it was estimated that 430 million people globally, or 7% of the world's populace, indulged into playing video games (Zona, 2004). Above one quarter of these people did play online and that quantity as a fraction of total video gamers keep on increasing. In the United States, half of the population of Americans at age six and older play video games (ESA, 2004).

Online games are the most widespread source of entertainment in modern societies and they aim at a range of people in different age group. The obsession with the competition and the exhilarations of the games make the games one of the most exciting and addictive programs for today's generation, so that the players do everything to reach an advanced level of the game and engage in the game so much that they entirely isolate themselves from their surroundings. The difficulties and accomplishing an advanced level in the game make the players motivated and losing the game makes them restless.

Computer games started in 1972 in the form of a computer tennis game, and then developed hardware and software systems. The quality and range of games started to develop at a faster pace and games became widespread among youth in no time. It is assumed that computer games offers opportunities for pictorial learning, similar to watching TV. However, these videogames are more dynamic and considerably more interactive than watching TV.

The normal 13 - 24-year-old in the United States watches 13.6 hours of television per week paralleled to 16.7 hours spent using the internet for activities other than email (Harris. Interactive, 2003). A normal weekly video game play is assessed in the 3-10-hour range. It is stated that people who excessively play multiplayer online games spent an average of 15 hours per week. However, it has been observed that the weekly usage of 30 hours or more is not rare (Seay, 2004; Yee, 2004). Given such a huge industry with flaring demand and a growing rate of use, questions arise about the impact video gaming has on the social life and psychological welfare of the user.

The term "addiction" is defined by the American Psychological Association (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition; American Psychological Association, 2013) as continued excessive use of a substance despite negative personal, occupational, or social consequences; inability to fulfill major work, school, or

home obligations; recurrent use in physically dangerous situations; tolerance; withdrawal; repeated unsuccessful efforts or desire to control use; craving or strong desire to use; and reducing or discontinuing important social, occupational, or recreational activities due to substance use.

Since these games are known as the second entertainment after TV, opponents of these games emphasize on their negative effects such as stimulating anger and violence, costing a lot of money and having negative effects of physical and mental health, which are much higher than the positive effects of the games such as increasing the coordination of eyes and hands.

As Klein and Keepers mentioned in their research reports in 1990, students who prefer computer games to other entertainments have more behavioral problems than other students (cited from Patton).

Since these games are identified as the second entertaining source after TV, critics of these video games stress their destructive effects such as stimulating rage and ferocity, spending a lot of money and devouring damaging effects on physical and mental health, which are much complex than the positive effects of the games such as increasing the synchronization of eyes and hands. Research reports in 1990 conclude that students who favor computer games to other entertainments have more social, behavioral complications than other students who do not play games (cited from Patton 1990).

As Klein and Keepers mentioned in their Playing video games to some extent can be beneficial, but long-term playing can lead to countless physical and mental problems. Long-term involvement with these games means that the players experience long-term pressure, anxiety and troublesome and during the game, physical tension and real physical stimulations.

In West USA it was found that 68% of youths had these games as their weekly entertainment. The motivation for playing these games among boys were thrill and the challenges that they feel while playing and their urge to win. Moreover, sport and violent games were more attractive for boys. The growing popularity of computer games among children and youth have made many researchers to study the effects of these games on players. (Zamani, Chashmi and Hedayati, 2009)

The expansion of electronic and computer games in recent decades is a great threat for youth and teenagers and can lead to psychological illnesses and depression in these groups. In prior times, these groups were traditionally playing with their peers, but nowadays they spend most of their time on computer games as soon as they become

familiar with them, while these gamers cannot make any emotional and social relationship.

1.1 Rationale

Online video game is one of the fastest growing industries right now... But nowadays, gaming could make parents be concerned about their children. Game addiction undoubtedly is a bad effect.

Therefore, this thesis examines why internet video games are addictive, how common is internet gaming addiction, what the psychological, physical social and health effect of video games are and, what the precautions and treatments for this disorder are, so that the problem can be prevented or treated well.

1.2 Objectives

Gaming addiction is still the cryptic problem. We must react to this problem seriously.

This thesis aims :

1. To study if the gaming addiction is a diagnosable disorder.
2. To analyze the symptoms of gaming addiction.
3. To study the impact of video games on psychological and physical health.
4. To examine the impact of video games on social life.
5. To explore how gaming addiction can be treated.

2 THEORETICAL FRAMEWORK

Computer game obsession commonly refers to an extreme, unhealthy amount of playing computer games. Other than socializing in the real world, an addicted user gives the most of his or her time to gaming (Conrad, 2011).

The problem of game obsession is becoming spread extensively and uncontrollably. Gaming addiction has become a cryptic problem which is still problematic to treated, more alarming than alcohol or drugs addiction. However, in fact, Dr Shumaila Yousafzai (2009) from Cardiff Business School stated that standard online video games advised players not to overuse their merchandises. These cautioning messages also suggest that the online video game business might know how high the ratio of over-users is, how much time gamers pass playing games what exact features make a certain game more captivating and addictive than others (Yousafzai, 2009).

However, on other hand, Cyber psychologist Dr Zaheer Hussain, from the University of Derby, said that cautionary messages were not sufficient. As an initial step, online game creators and producers need to investigate the fundamental features of the game design, for example, the fast absorption rate, the character development and multi-player structures which could make them addictive and or difficult for some gamers (Hussain, 2008).

Kimberli Young (2009, p.12) states that not only are children, adolescents, and college students are affected by online gaming obsession, but an increasing number of adults are becoming addicted to online gaming. Although such cases are uncommon, mental health specialists warn that the unreal worlds open by computer and video games can become the substance of very real addictions that abolish careers and marriages. People of all age groups are speedily indulging in this virtual imaginary world where they can effortlessly escape from the problems in their lives.

Tracy Miller (2013) states that because computer game addiction is a new evolution in the realm of mental health, treatments are not as thriving as those for depression, apprehension, rage, etc. Most treatments take a cognitive-behavioral approach which includes changing how the addict thinks.

Fraser (2012) references that kids are amongst the most susceptible to video game addiction and may become ferocious when their "drug" is taken away. Video game and

Internet addiction typically point to other psychological problems including apprehension, anxiety, depression and developing healthy relationships.

Parents across the world are progressively worried about their children's online gaming practices. They are certain that there is a problem, but counselors are unaware of online gaming obsession and they do not understand how addictive games can be (Young, 2009, p.4).

Although addiction has typically been thought of as usage to alcohol and other psychoactive drugs, psychologists have argued that the concept also applies to sex, gambling, and other activities (e.g., Orford, 2001).

Conversely, individuals with an obsessive passion feel compelled to engage in the activity and experience negative feelings (e.g., sadness, anger, anxiety, guilt) both when prevented from and while engaging in the activity. Unlike a harmonious passion, an obsessive passion is associated with negative consequences resulting from over-engagement in the activity (Mageau, Vallerand, Rousseau, Ratelle, & Provencher, 2005; Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004; Vallerand et al., 2003).

Online gaming addiction can also lead to psychosocial problems such as obsession with gaming and lack of real-life relationships (Allison et al., 2006).

3 METHODOLOGY

The method used in this thesis was quantitative for collecting data because it was the most ideal method for conducting this research. The results are based on a survey carried out with a questionnaire. The survey was answered by teenagers, youth and adults that like playing video game and the family members and it aimed to examine the symptoms of gaming addiction, and the effect of the gaming addiction on their daily lives.

3.1 How questionnaire was formed?

The Questionnaire was formed on the basis of our research questions mentioned in the beginning of this thesis. To find the answers of these research questions was the crust of the whole questionnaire which was designed to obtain the most complete and accurate information possible. The questionnaire was formed to collect both qualitative and quantitative information.

The survey was distributed by social media websites and services including sending it on WhatsApp of gaming communities in Turku and Helsinki. The questionnaire was also posted on discord gaming servers and Facebook gaming groups. A total number of 63 people responded to the survey.

The content of the questionnaire had questions related to the objectives of the thesis.

4 RESULTS

These are the results and statistics based on the responses on the questionnaire. The questionnaire covered a wide variety of effects and situations concerning the IGD.

Video games are significant part of my life.

63 responses

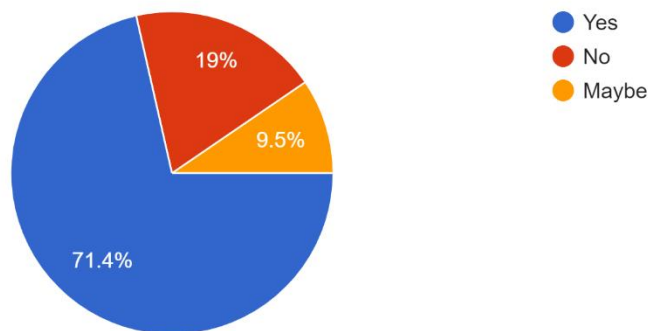


Figure 1. How many people think that video games are significant part of their lives?

Interpretation:

Figure 1 indicates the responses of the surveyed population (63) on asking do they think video games are significant art of their life. 71.4%)said yes (19%) said no and (9.5%) replied with maybe.

Gaming is the main source of entertainment for me.

63 responses

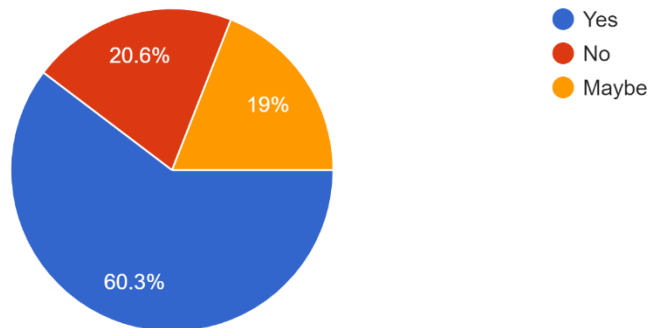


Figure 2. How many people think gaming is a main source of entertainment for them?

Interpretation:

Figure 2 indicates the responses of the taken population of (63) on asking do they think gaming is a main source of entertainment for them majority answered yes with (60.3%). Whereas (20.6%) replied No and (19%) answered Maybe.

I play video games to discharge anxiety.

63 responses

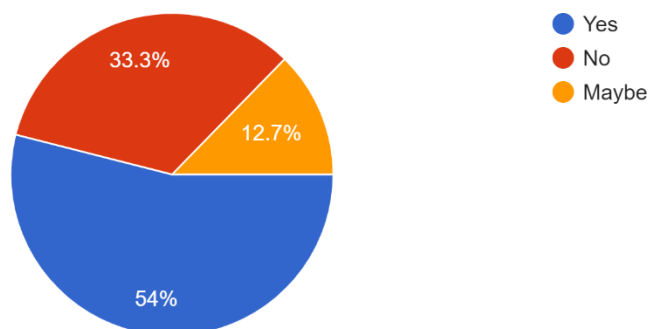


Figure 3. How many people play game to discharge their anxiety?

Interpretation:

Figure 3 indicates the responses of the taken population of (63) on asking them if they play games to discharge their anxiety majority said No with the percentage of (56%) whereas (33.3) said Yes and (12.7%) said Maybe.

I procrastinate over essential things to play games.

63 responses

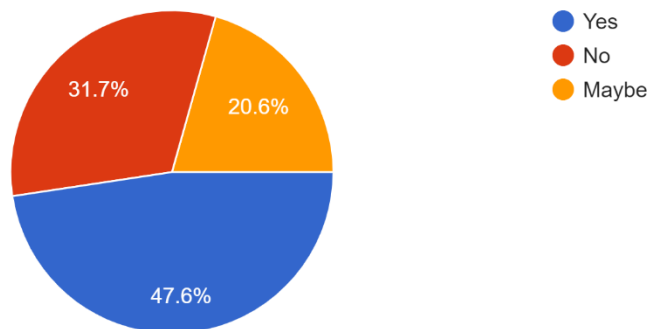


Figure 4. How many people procrastinate over essential things to play games?

Interpretation:

Figure 4 indicates the responses of the taken population of (63) in asking them if they procrastinate over essential things to play game majority said No with percentage of (47.6%) whereas (31.7%) said Maybe and (20.6%) said Yes.

I miss hours of sleep to gaming.

63 responses

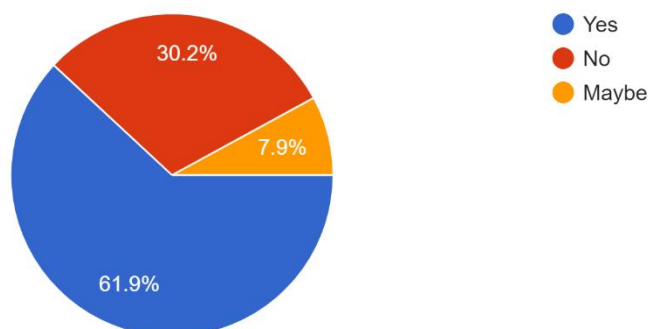


Figure 5. How many people miss hours of sleep to gaming?

Interpretation:

Figure 5 indicates the responses of the taken population of (63) on asking them if they miss hours of sleep to gaming. (61.9%) said Yes. (30.2%) said No whereas (7.9%) said Maybe.

I uninstalled the game decided not to play it, and later returned to it.

63 responses

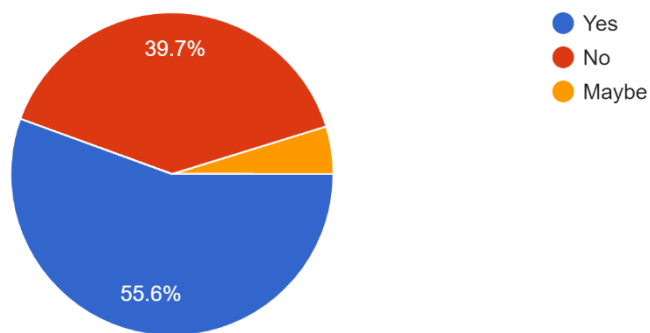


Figure 6. How many people uninstalled the game decided not to play it, and later returned to it.

Interpretation:

Figure 6 indicates the responses of the taken population of (63) on asking them about if they have uninstalled the game decided not to play it, and later returned to it. (55.6) said yes, (39.2%) said No and (7%) Maybe.

I set parameters of playing game and then break them, playing hours longer than planned?

63 responses

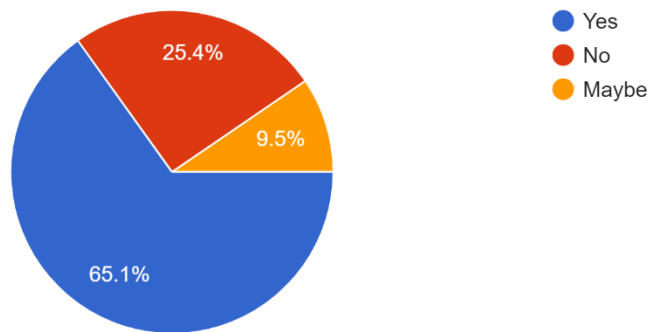


Figure 7. How many people set parameters of playing game and then break them, playing longer hours?

Interpretation:

Figure 7 indicates the responses of the taken population of (63) on asking them if they set parameters of playing game and then break them, playing longer hours' majority answered Yes with (65.1%), (25.4%) No and (9.5%) said Maybe.

I feel irritated when people oppose me about how much time I spend playing video games.

63 responses

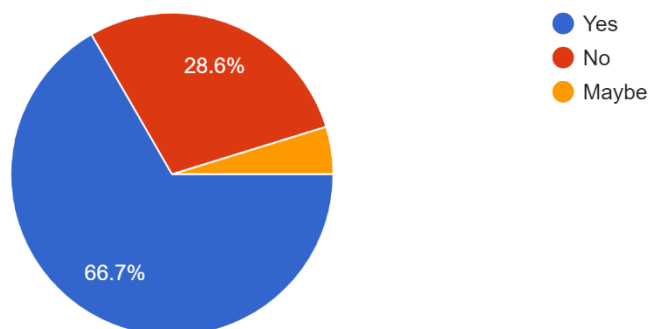


Figure 8. How many people feel irritated when others oppose them about how much time they spend on playing video games.

Interpretation:

Figure 8 indicates the responses of the taken population of (63) on asking them if they feel irritated when others oppose them about how much time they spend on playing video games. (66.7%) said Yes and (28.6%) No.

I feel annoyed when I am unable to play games due to other activities.

63 responses

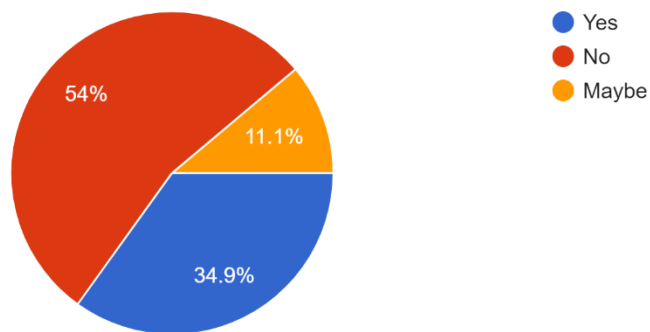


Figure 9. How many people feel annoyed when they are unable to play games due to other activities.

Interpretation:

Figure 9 indicates the responses of the taken population of (63) on asking them if they feel annoyed when they are unable to play games due to other activities majority said Yes with (54%). (34.9%) said Yes and (11.1%) said Maybe.

Gaming has taken over any sports and hobbies i used to enjoy?

63 responses

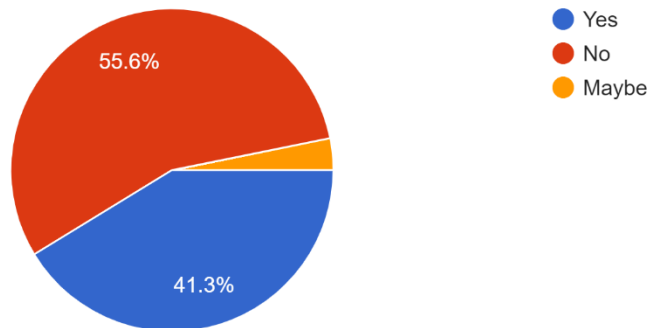


Figure 10. How many people think gaming taken over any sports and hobbies they used to enjoy?

Interpretation:

Figure 10 indicates the responses of the taken population of (63) on asking them if they think gaming taken over any sports and hobbies they used to enjoy. (41.3%) said Yes. (55.6%) said No whereas (3%) said Maybe.

My hours of playing games have increased over the years.

63 responses

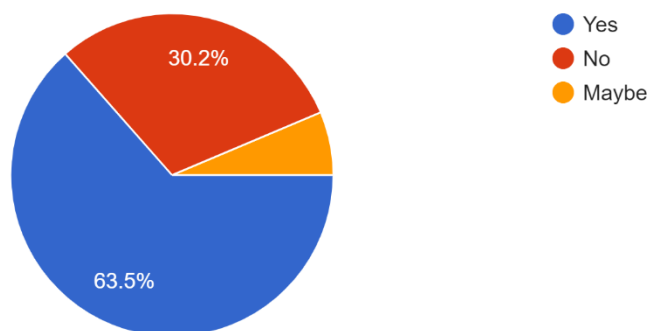


Figure 11. How many people think their hours of playing games have increased over the years?

Interpretation:

Figure 11 indicates the responses of the taken population of (63) on asking them how many of them think their hours of playing games have increased over the years. (63.5) said Yes on this particular question. (30.2) said No and a very small percentage went with maybe.

I prefer gaming over participating in social events.

63 responses

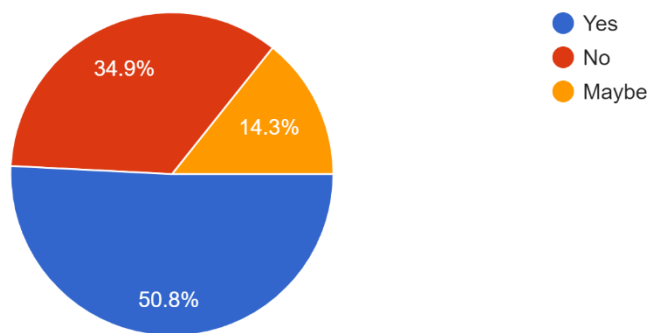


Figure 12. How many people prefer gaming over participating in social events?

Interpretation:

Figure 12 indicates the responses of the taken population of (63) on asking them if they prefer gaming over participating in social events. (50.8%) said Yes. (34.9%) said No whereas (14.3%) said Maybe.

I often forget schedules, deadlines or responsibilities in work or school due to gaming.

63 responses

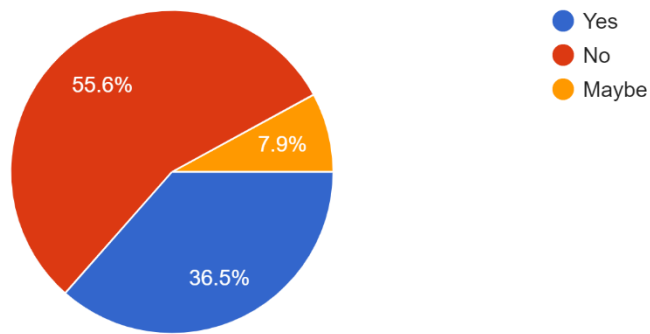


Figure 13. How many people often forget schedules, deadlines or responsibilities in work or school due to gaming?

Interpretation:

Figure 13 indicates the responses of the taken population of (63) on asking them if they often forget schedules, deadlines or responsibilities in work or school due to gaming. (36.5%) said Yes. (55.6%) said No whereas (7.9%) said Maybe.

Arguments have occasionally risen at home because of the amount of time I spend on video games.

63 responses

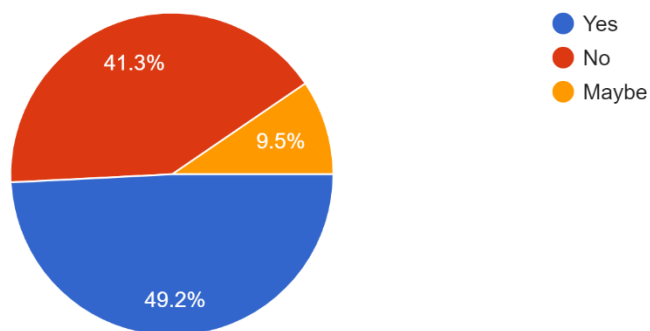


Figure 14. How many people think arguments have occasionally risen at home because of the amount of time they spend on the video games?

Interpretation:

Figure 14 indicates the responses of the taken population of (63) on asking them if arguments have occasionally risen at home because of the amount of time they spend on the video games. (49.2%) said Yes. (41.3%) said No whereas (9.5%) said Maybe.

Are the people in your life concerned by your gaming addiction?

63 responses

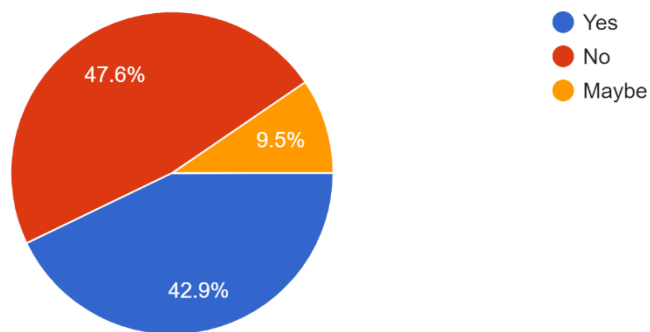


Figure 15. How many people think that people in their life are concerned about their gaming addiction?

Interpretation:

Figure 15 indicates the responses of the taken population of (63) on asking them if they think that people in their life are concerned about their gaming addiction?

(42.9%) said Yes. (47.6%) said No whereas (9.5%) said Maybe.

Do you get furious and abusive with other players who make mistakes?

63 responses

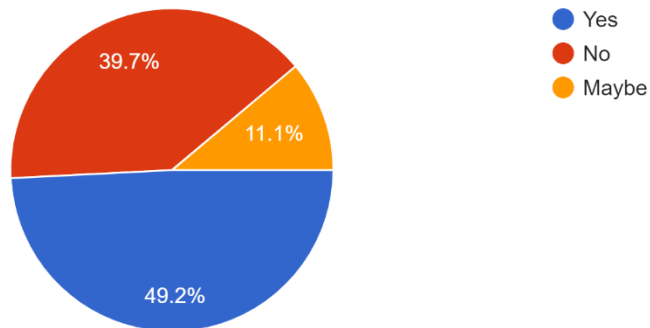


Figure 16. How many people think that they get furious and abusive with other players who make mistakes?

Interpretation:

The table indicates the responses of the taken population of (43) on asking them if they get furious and abusive with other players who make mistakes.

Have you tried to control game time by swapping games?

63 responses

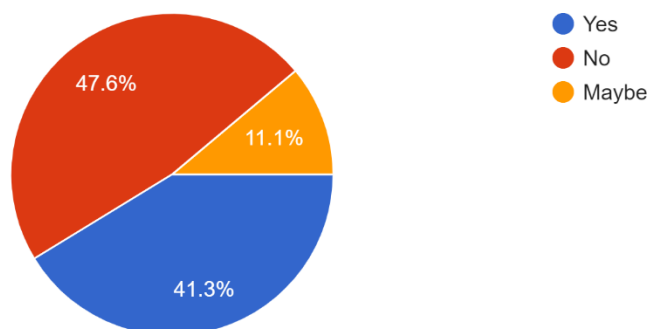


Figure 17. How many people tried to control game time by swapping games?

Interpretation:

Figure 17 indicates the responses of the taken population of (63) on asking them if they tried to control game time by swapping games. (41.3%) said Yes. (47.6%) said No whereas (11.1%) said Maybe.

Are most of your friends gamer?

63 responses

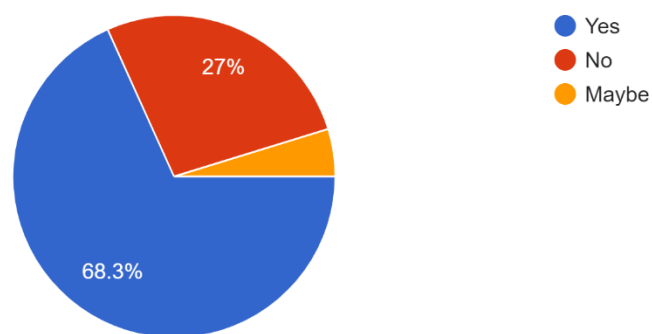


Figure 18. How many people have most of gamers friends?

Interpretation:

Figure 18 indicates the responses of the taken population of (63) on asking them are most of their friends' gamer. (68.3%) said Yes. (27%) said No whereas (4%) said Maybe.

Do you find it exciting to talk about new gaming techniques and innovation?

63 responses

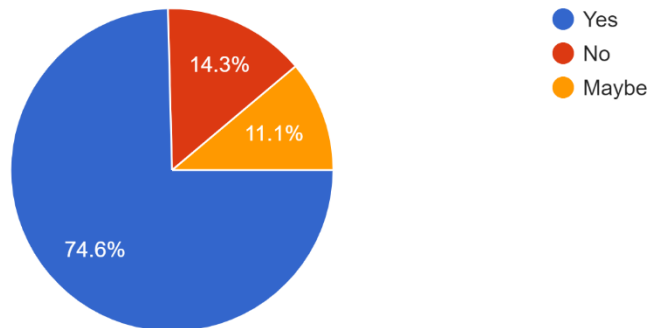


Figure 19. How many people find it exciting to talk about new gaming techniques and innovation?

Interpretation:

Figure 19 indicates the responses of the taken population of (63) on asking how many of them find it exciting to talk about new gaming techniques and innovation. (74.6%) said Yes. (14.3%) said No whereas (11.1%) said Maybe.

Do you like to read game-related articles and research?

63 responses

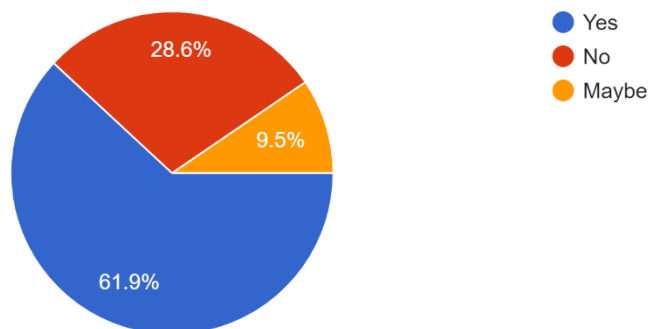


Figure 20. How many people like to read game-related articles and researches?

Interpretation:

Figure 20 indicates the responses of the taken population of (63) on asking them if they like to read game-related articles and researches. (61.9%) said Yes. (28.6%) said No whereas (9.5%) said Maybe.

Do you like to eat while gaming or miss your meals during gaming?

63 responses

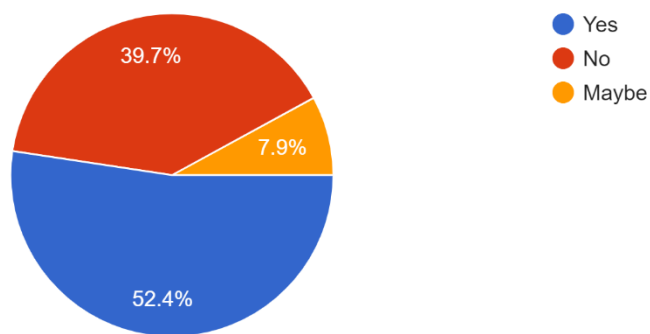


Figure 21. How many people like to eat while gaming or miss your meals during gaming?

Interpretation:

Figure 21 indicates the responses of the taken population of (63) on asking them if they like to eat while gaming or miss your meals during gaming. (52.4%) said Yes. (39.7%) said No whereas (7.9%) said Maybe.

Do you feel short-tempered and agitated during gaming?

63 responses

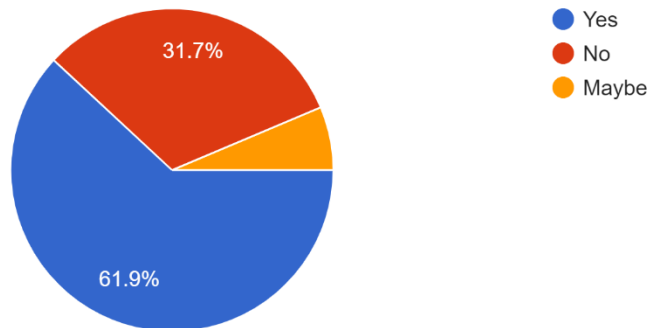


Figure 22. How many people feel short-tempered and agitated during gaming?

Interpretation:

Figure 22 indicates the responses of the taken population of (63) on asking them if they feel short tempered and agitated during gaming. (61.9%) said Yes. (31.7%) said No whereas (6%) said Maybe.

Have you spent actual money in-game?

63 responses

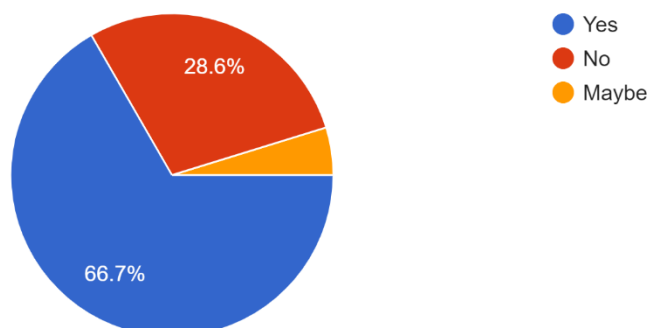


Figure 23. How many people spent actual money in-game?

Interpretation:

Figure 23 indicates the responses of the taken population of (63) on asking them if they spent actual money in-game. (66.7%) said Yes. (28.6%) said No whereas (3%) said Maybe.

Do you prefer spending on games over your other financial responsibilities?

63 responses

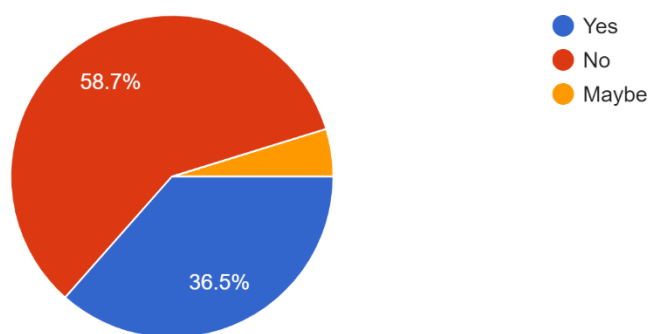


Figure 24. How many people prefer spending on games over your other financial responsibilities?

Interpretation:

Figure 24 indicates the responses of the taken population of (63) on asking them if they prefer spending on games over your other financial responsibilities. (36.5%) said Yes. (58.7%) said No whereas (4%) said Maybe.

Have you gained weight since becoming a gamer?

63 responses

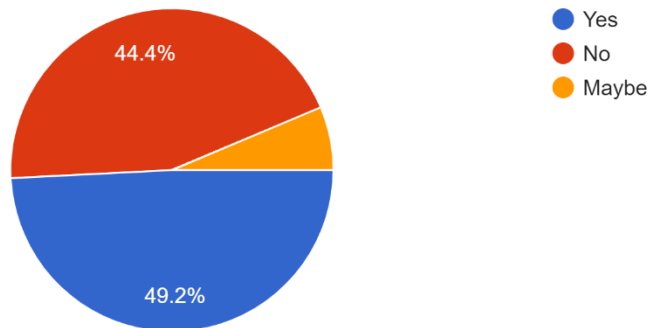


Figure 25. How many people have gained weight since becoming a gamer?

Interpretation:

Figure 25 indicates the responses of the taken population of (63) on asking them if they gained weight since becoming a gamer. (49.2%) said Yes. (44.4%) said No whereas (5%) said Maybe.

Have you experienced any physical pains from long sessions of gaming?

63 responses

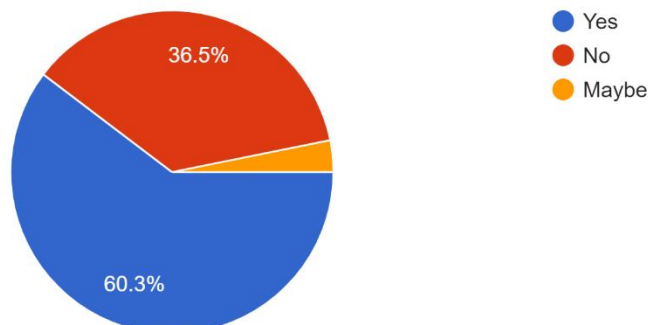


Figure 26. How many people have experienced any physical pain from long sessions of gaming?

Interpretation:

Figure 26 indicates the responses of the taken population of (63) on asking them if they experienced any physical pain from long sessions of gaming, (60.3%) said Yes. (36.5%) said No whereas (3%) said Maybe.

Do you think your life would be better if you stop gaming?

63 responses

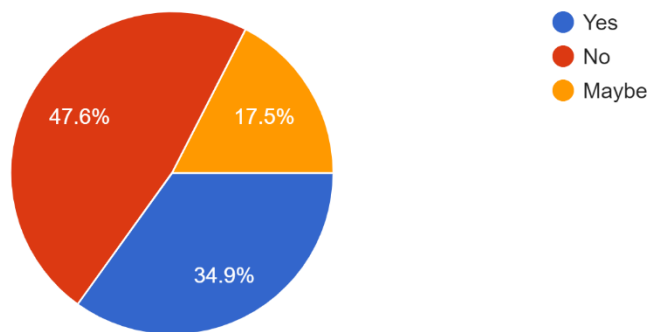


Figure 27. How many people think their life would be better if they stop gaming?

Interpretation:

Figure 27 indicates the responses of the taken population of (63) on asking them if they think their life would be better if they stop gaming. (34.9%) said Yes. (47.6%) said No whereas (17.5%) said Maybe.

Can you imagine a life without gaming?

63 responses

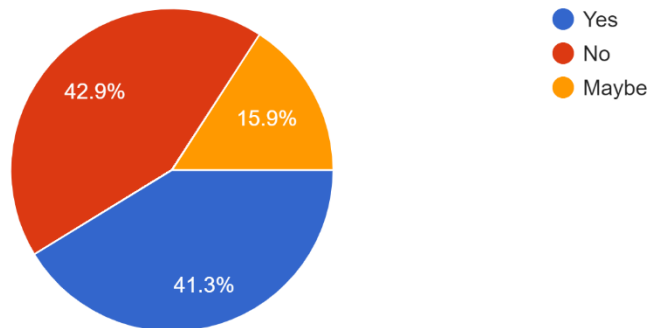


Figure 28. How many people can imagine their life without gaming?

Interpretation:

Figure 28 indicates the responses of the taken population of (43) on asking people can they imagine their life without gaming

5 DISCUSSION

According to NeoGames, 2017 was the year of evolution for the Finnish game industry where it was the third consecutive year when the turnover of the gaming industry was 2 billion EUR. Also the number of people employed by the gaming industry in Finland almost jumped to 3000 employees. Finland is ranked as the third biggest game developer industry in Europe. In 2017 almost 15 companies were established and around 150 games were released in this year in which most of games were mobile games but virtual reality games amplified. (NeoGames, 2017)

Due to explosive growth in technology and internet usage in the last few years, internet gaming disorder (IGD) has manifested as rapidly growing public health problem mainly affecting the teen and preteen population worldwide. It has a negative impact upon physical, psychological, social, and occupational functioning of the affected individual, often leading to severe consequences. (Naskar, Victor, Nath and Sengupta, 2016)

The results of the research conducted by the questionnaire for this thesis have shown shocking results on the lives of gamers. The study population included gaming addicts. Based on the findings there is a direct relationship between addiction to computer games and physical complaints, anxiety and sleep disorder, disorder in social functioning and depression were significant in gamers similarly, Payne et al. (2000) studied the role of computer games on social isolation, low self-esteem and ferocity. The results showed no correlation between playing computer games and self-esteem in girls, but there was an adverse relation-ship between the two in boys. Moreover, the score of violence had an affirmative correlation with amount of disclosure to computer games. Other results showed that despite of attraction to games, there was no evidence that computer games cause social isolation. In contrast Doran (ref) in his research explained in the pre-sent study, there was a reverse correlation between addiction to computer games and social dysfunction. So, the obsession to computer games increases, social dysfunction will decrease.

In a study carried out by (Festl et al. 2012) on youth, young people and older ones in Germany, it was discovered that men spent more time playing games than women, similarly our research showed that gaming addicts miss social events to play games.

Ahmadi (1998) calculated the effects of computer games on youths of the city of Isfahan. The purpose of his study was to discover if computer games have social effects. The outcomes showed that violence and aggression in students who played these games was higher. Also, social contribution of people who were playing computer games was low. Similar results were obtained during the research of this thesis.

5.1 Identifying the gamers:

It was Bartle who first formulated a hypothesis based on motivational approach, he classified the motives according to the playing styles and classified the gamers in four categories. The “achievers,” “explorers,” “socializers,” and “killers.” The achievers were those who game to attain respect of the virtual society and to gain some reward which may be a “level up” or a “new power.” Their actions are goal directed, i.e., to complete the missions of the game. The “explorers” game in search of sudden pleasures to discover new in-game structures and story. The “socializers” game to socialize, chat, and be a part of something like a team or community. Finally, comes the “killers,” also known by the slang “trolls” who use the gaming platform to bully on fellow gamers or annoy them in anyway.

Yee made a novel attempt to categorize the motivations behind internet gaming. After testing a 40-item questionnaire, he reported three major motivational components; the first component is again subdivided into three subcomponents, which include being “in-game rank reputation” or “advancement” in the game. This includes leveling up, acquiring a new status or skill of the game character. “Mechanics” includes optimizing the game to face harder challenges. “Challenge” where the player dominates other players and earn respect of the gaming community. The second component is “social factor.” It includes chatting with fellow gamers, socializing, being part of communities, making friends, and forming teams to take on rival teams. The third component again has three subcomponents, namely, “discovery” where the players discover new items, weapons, or a new in-game world to explore, “escapism” where the gamer can escape into the virtual world forgetting about all the problems and hindrances of the real world, which leads to a subjective mood elevation, and “a coping strategy to deal with everyday problems” and finally, “role playing” where the gamer acquires a new persona according to his/her fantasy. (Naskar, Victor, Nath and Sengupta, 2016).

5.2 Video games genres:

Video game genres and gameplay characteristics categorize the video games in various categories. Those are known as simulation, strategy, action and role-playing. However, among all these genres, it is the massively multiplayer online role-playing games (MMORPGs) that has been a major stakeholder in the expansion of IGD among the gaming masses.

“Muller studied a sample of 12,938 children and adolescents from seven countries across Europe; they reported that “adolescents with IGD reported, being from broken home, divorced parents.” Wang reported that gaming addiction has a positive association with academic performance, gender, perceived family harmony, relationship with classmates, and the number of close friends; whereas they found no association with age, grade in which subject is studying, number of family members/siblings, parental marital status, education status of parents, socioeconomic status, and ownership of gaming devices.

There are some studies that tried to evaluate if the genre of the game has anything to do with intensity of gaming addiction. Donati in their study conducted in 2015, among 701 male adolescents, found that the most popular genre is action (88%) followed closely by casual (86%) and sports (84%) games. Real-time strategy (RTS) (32%) games, retro games (30%), and massively-multiplayer online (27%) were the less practiced. They also found that there is a statistically significant and positive correlation between time spent on gaming and gaming versatility (the gaming versatility score was calculated by summing the number of video game genres played).” (Naskar, Victor, Nath and Sengupta, 2016).

5.3 Internet addiction and internet gaming addiction are not alike:

Internet addiction (IA) and internet gaming disorder (IGD) are not the same entity according to Griffith and Pontes (2104). Király and colleagues [11] examined the interrelationship and the overlap between internet use disorder (IAD) and IGD in terms of (amongst other variables) gender, and time spent using the internet and/or online gaming, and preferred online activities. They collected their data from a nationally representative sample of over 2,000 adolescents. They found that IGD was much more strongly associated with being male, and that IAD was positively associated with online

chatting, online gaming, and social networking while IGD was only associated with online gaming. The authors argued that IGD appears to be a conceptually different behavior than internet use disorder and that their data supported the notion that IAD and IGD are separate nosological entities. In another recent cross-cultural study that included 636 participants from China, Taiwan, Sweden, and Germany. The authors examined whether it was meaningful to distinguish between generalized internet addiction and online gaming addiction – conceptually framed as specific internet addiction. (Griffiths and Pontes 2015)

5.4 Internet gaming disorder in the diagnostic and statistical manual of mental disorders:

Over the years, there had been debates whether to classify IGD as a separate entity, finally the recognition came in 2013 with the arrival of the DSM-5. It states 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” is considered IGD. Those criteria being preoccupation, withdrawal, tolerance, unsuccessful attempts to control, loss of interests, continued excessive use despite psychosocial problems, deceiving, escape, and functional impairment. (Naskar, Victor, Nath and Sengupta, 2016).

The results of study for this thesis exhibited that there is a direct relationship between physical well-being, anxiety and depression with computer games addiction. However, the connection of addiction to computer games and social relationship was significance and converse. In 1990, Yuma et al (Yuma et al. 1990) led an intensive study in 9 cities of Japan regarding the computer games played by children and youths and its effects on their physical health. The results indicated that overweight students were more involved to computer games. In other words, playing excessive computer games cause them to stay home, which resulted in the lack of activity and movement due to which they became overweight. This is considered as a biological problem. In psychological aspect, it was observed that computer games have a destructive relationship with mental health of youths and have a direct result on their aggressive behavior, anxiety, sadness, depression and solitude of those adolescents who play these games.

5.5 Psychological impact of IGA:

The effects of computer games on psychological health of people and severity and the consequence of that depends on aspects such as level and intensity of violence in the game, the capability of player in separating virtual world and real world, player's capability to inhibit their requirements and motivation, the morals and principles they are brought up with or living with and also standards that are in the context and content of the games (Turner ,1989). It was also observed that anxiety was one of potential effects of computer games. Studies revealed that computer games increase players' heart beats to a level more than their body demand. In the current research also, we found a direct major relationship between addiction to computer games and anxiety. Payne et al (2000) studied the role of computer games on social isolation, low confidence and violence. The results revealed no connection between playing computer games and confidence in girls, however there was an adverse relationship between the two in boys. Also, the level of violence had direct relationship with amount of exposure to computer games. Other results presented that in spite of children's interest in games, there was no proof that computer games cause social isolation.

Schutte NSS (1988) stated that players imitate to the characters in the game, the theory of participatory modeling and active conditioning can be used in explaining data on aggressive behaviors and promising rewards they get in return.

5.6 Social Impact of IGA:

Addicted gamers spend so much time playing games that their personal relationships get ignored and sometimes vanish altogether. Among addicted gamers who are married, up to 50 percent account a strain in their marriage due to their addiction. Addicted gamers also abandon the responsibilities of everyday life such as education and official work.

It is not just mistreatment that costs addicted gamers their relationships. Some of them talk so much about their game of choice – to the prohibition of everything else – that people no longer want to be around them. They cannot, or will not, involve in real world conversations or be a source of sustenance or inspiration to friends and family. Because their friends talk about so many other things, they begin to feel isolated, which in turn causes them to feel annoyed or snubbed. They do not realize that they have chosen to be left out by giving all their time to gaming.

This lack of social communication that results from compulsive gaming can have long-term social consequences. An addicted teenager won't develop real social skills, which will obstruct his ability to develop and maintain strong relationships in college and beyond. Suddenly, he is 21 but has the social skills of a 15-year-old. He does not know how engage with people or how to make friends, talk to girls, or just "hang out" and relish people's company. The social discomfort created by the remoteness of gaming addiction, unfortunately, feeds the addiction. The gaming addict will possibly go back to his online world where interactions are easier and relationships already waiting for him.

Azad Fallah (2001) in his study examined the relationship between games and social skills a sample size of 258 male students of first grade of high school were examined. The results revealed a substantial relationship between the game-type and presence of others in the game place with social skills of youths. Choosing home as the place of game had negative relationship with social skills and those layers who were frequently playing at home, had less social skill (cited from Doran year). However, in the pre-sent study, there was an inverse relationship between addiction to computer games and social dysfunction. It means that as the addiction to computer games increases, social dysfunction will decrease logical problem.

Ahmadi (1998) studied the effects of computer games on adolescences of the city of Isfahan. The purpose of his study was to investigate the effects of computer games on social life. The study exposed that violence and aggression level was higher in those students who played these games than those who did not play. Also, social involvement of students who were playing computer games was less. The initial factor observed in most studies as well as the current study is the disorder in general health of players. Numerous studies (in Ahmadi 1998) demonstrate that playing excessive computer games causes physical harms and rises anxiety and depression in players. Several studies (in Ahmadi 1998) demonstrate also confirm that gaming addicts have high heart beat and blood pressure due the exhilaration and pressure that players feel while playing. Most of those who indulge in these games do not notice the time passing and even skip meals.

5.7 Behavioral issues and gaming addiction:

Addicted gamers experience visibly more irritability, worry (less composure), sorrow, and often account of baffling real life with the virtual world. Van Rooij (2014) found a stout

association between excessive gaming and decreased psychosocial health and low educational performance. A study printed in 2011 on 540 adolescents in the Netherlands tried to assess the relationship between aggression and excessive gaming and revealed some thought-provoking results. They reported that extreme gaming is progressive in nature and if not measured may displace important daily activities. Another significant finding was that, irrespective of involvement of violence in gameplay, gaming addicts self-reported amplified aggressive feelings after 6 months; however, this finding was reported only in males. They also observed that rise in aggressive behavior is mainly linked to the time spent in playing violent games specially, these data predict a chance of physical aggression in excessive gamers in future life, which is also reinforced by many other studies. Addicted gamers show low social involvement and there is a noticeable negative relationship between social abilities of addicted gamers and choice of home as the place of gaming. Kim et al. led a study on 3041 adults in Korea, which initiate that gamers at risk of compulsion are impulsive, show more aggression than healthy controls, and there is 5 times more danger of attempted suicide in them.

It seems that creating a cause and effect relationship between computer games and physical health or more generally speaking, cause and effect relationship between addiction to computer games and mental and physical health is simplification of the subject.

There are numerous causes for relationship between addiction to computer games and physical health, anxiety and depression. First, compulsion to computer games can cause ailment in physical health, escalate anxiety and depression. Second, it is possible that poor physical and mental health cause people to get involved in computer games. Third reason is that both addiction to computer games and disorder in physical and mental health are caused due to the effects of other dynamics. Considering relationship between playing computer games and physical and psychological disorders, the adverse effects of these games are mostly related to the games and their nature. Therefore, some computer games can be productive, while others can have negative effects on body and mind. Thus, we should admit anyway that computer games like many other marvels of technology age have found their ways our lives.

Recently many studies have proposed numerous preventive strategies and treatment consequences on individuals, there is a huge lack of literature mainly of longitudinal measured studies on the internet gaming addiction. Griffiths and Meredith in their article in 2009 (Griffiths & Meredith 2009) placed down some strategies to be followed for

prevention and treatment purpose Griffiths et al.'s recommendation for prevention of internet gaming addiction Firstly the content of the video game that is being played. If it has some offensive contents, it needs to be conversed and some guidelines need to be set. Both parents and professionals should target at choosing games which is entertaining and constructive. Make the player comprehend the difference between virtual world and reality. Solitary game playing should be discouraged. Recommendations on the conceivable risks drawn by videogame manufacturers should be followed and make sure that many other activities are accessible to pursue for the gaming addicted in their free time other than videogames.

5.8 Health issues of IGA:

Many people claim that gaming has a constructive impact on us, such as better hand-eye coordination. Others claim that games put our health at threat, due to the inactive lifestyle or staring for an extended time at a bright screen, among others. There's possibly fact to both sides, and - as always - moderation is the key. The following health issues have been identified

a) Vision problems

The most common problem most of gamers experience while gaming, is eye strain. Staring at screens for more than a few hours without taking pauses can drain our eyes. In the medical term, this case is called Computer Vision Syndrome (CVS). The condition terms any vision-related problem that starts from prolonged disclosure to computers, cell phones, or any other sort of display. Due to CVS, we may face problems like eye strain, eye pain, headaches, distress, distorted vision tears or dry eyes, neck and shoulder aching, and so on.

b) Blue light from screens and CVS

Regardless of the eye problems, disclosure to computer screens or TVs at night may suppress the melatonin production in our body. Melatonin is a hormone accountable for making us sleepy at night. Our brain controls the production of melatonin, concerning the extent of daylight in our environment. The less melatonin we produce, the less we will sleep. Screens produce blue light, which is alike to the sun's light. Therefore, if we stare at a screen late at night, the contact to blue light "puzzles" the brain, which does

not produce melatonin, thinking it is still daytime. This may result in troubled sleeping routines, lack of sleep, insomnia, etc.

c) Musculoskeletal problems.

Musculoskeletal problems may arise while sitting plenty of hours in a chair, especially in a bad sitting posture while playing.

d) Nintendonitis

This is also identified as gamer's grip, is a repetitive strain injury problem that happens to solace gamers. The signs involve scorching, paranesthesia, and swelling of the thumbs, because of using a gamepad controller.

e) Sedentary lifestyle and obesity

A video game addiction can make us inactive. Sitting for hours with slight movement can lead to health issues related with obesity. It is not just because of lack of movement, but also what we eat while gaming.

5.9 Treatments

This section discusses some possible treatments of IGA.

a) Online support forums

A number of online support forums such as Computer Gaming Addicts Anonymous (<http://cgaa.info/discussion-forum/>).

Online Gamers Anonymous (<http://www.oganon.org/home>) have sprung up in recent years which provide both information and internet-based treatment approach. The approach is mainly based heavily on the 12-step program of recovery (honesty and acceptance, hope, faith or trust, action and courage, integrity, willingness, humility, love, justice, perseverance, spirituality or beauty, and service) used by such groups as Alcoholics Anonymous and Gamblers Anonymous. (Naskar, Victor, Nath and Sengupta, 2016).

b) Cognitive behavior therapy

It is believed that cognitive behavior therapy (CBT) has got a role in the treatment of IGD. Identification of faulty cognition, distorted emotions, and application of proper coping skills are the ground rules for CBT. In a very recent study, King and Delfabbro (2016)

tried to evaluate the cognitive psychology of internet game addicts. They found four cognitive factors that drive the behavior: “(a) beliefs about game reward value and tangibility, (b) maladaptive and inflexible rules about gaming behavior, (c) over-reliance on gaming to meet self-esteem needs, and (d) gaming as a method of gaining social acceptance.” (King and Delfabbro 2016)

c) Motivational Interviewing

A cognitive client-centered motivational approach has been suggested by some authors. The idea is to provide motivation to a person with gaming addiction, most of whom are coerced in various treatment programs. The Develop discrepancy, Avoid argumentation or confrontation over the behaviour, Roll with resistance, Express empathy, Support self-efficacy strategy is mainly applied on the area of ambivalence and resistance. (Griffiths and Meredith 2009)

d) Treatment with the self-discovery camp

A paper published by Sakuma 2016 proposed an innovative way of dealing with internet gaming addiction. They offered deaddiction by concentrated treatment in a therapeutic residential camp, which they called “Self-Discovery Camp.” The camp did not permit clients to bring any digital equipment.

Components of therapy treatment

- 14 sessions of CBT by psychologists
- Three medical lectures by doctors
- Eight sessions of personal counseling
- One workshop
- Outdoor events such as cooking, walk rally, hiking, and woodworking.

Objective of self-discovery camp

1. To raise awareness of health, fitness, and a well-balanced life.
2. To involve in communication without the Internet or digital devices
3. To team up with others and solve problems.

College student volunteers were employed as mentors. Contribution was voluntary for everyone including the clients with IGD and the motivators who were college students majoring in education. The program reported a significant reduction of gaming behavior after only 3 months of therapy. (Sakuma 2016)

e) Virtual reality treatment program

Another ground-breaking paper from Korea by Park reported progress of gaming behavior similar to that achieved by CBT, which they called virtual reality treatment program. This program comprises of eight sessions, each session comprising of three steps preceded by a pre-interview.

Steps Pre-interview: In this stage, the demographic data and photograph of participants were taken, their voices were recorded, each participant had to answer two questions: “(a) What are the most precious things in your life? (b) What is the most difficult problem caused by your excessive game play?”

1. Relaxation (5 min) - This phase was done to relax the persons by exposing to relaxing sounds and video
2. Simulation of a high-risk situation (10 min) —This phase was to induce craving in the client and was done by exposure to gaming cues from the game that he/she plays
3. Sound-assisted cognitive reconstruction (10 min) - An aversive noise causing anxiety and annoyance to the participant was played in the most exciting high-risk situations which was paired with stimuli illustrating the aversive consequences of long-term pathological gaming (this was done by integrating participant's photographs in aversive situations depicting long-term consequences of pathological gaming). The session ended by playing the initial recording of the participant's answer to the question, “What are the most precious things in your life? “The treatment protocol reported similar efficacy to that of CBT but within a short period of time. (Park SY, Kim SM, Roh S, Soh MA, Lee SH, Kim H 2016)

f) Pharmacological treatment

Han studied the role of bupropion-sustained release formulation in IGD. After a 6-week trial, they concluded that there is a significant reduction in craving for internet video game play, total game play time, and cue-induced brain activity in dorsolateral prefrontal cortex. However, King and Delfabbro reviewed three studies which suggested bupropion or methylphenidate for IGD and compared their efficacy to

psychological treatments. They found no significant differences in terms of their efficacies. (Han, Hwang and Renshaw 2010) (King and Delfabbro 2014)

6 CONCLUSION

The objectives of this thesis were met by the research method used in the form of a questionnaire. The findings highlighted a number of negative aspects of gaming addiction among people from young to mid age (12 to 40 years). The results varied from social aspects to mental and physical aspects. It brought out different scenarios that the affected people face in their daily lives and gave a better understanding to the problem that a large population of the world is facing currently.

Even though being documented and recognized by the DSM-5 as a discrete entity, IGD is yet to be given more importance as general health problem. Numerous studies and surveys regarding this topic have taken place recently but as of now the extent of this problem is still unknown. There are not many diagnostic measures currently that help us recognize individuals that are suffering from this problem and this needs to be taken care of. The research for the rehabilitation and treatment of IGD are in the early phase and need to pick up pace.

“Not only is there an urgent need for an effective and definitive clinical guideline of treatment, but also there is an urgent need to spread awareness and establishment of specialized clinics countrywide to provide solutions to those who are in desperate need to get out of the virtual reality.” (Naskar, Victor, Nath and Sengupta, 2016).

As in any treatment program, the primary step to take in the path, according to Kimberly (2009, p.18), to retrieval is to accept and not disprove “denial,” a shield mechanism that addicts often employ and that efficiently stops them from accepting treatment. Once this hindrance is conquered, treatment can be done more successfully than it would otherwise.

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