

Bibliotherapy and the Reduction of Internet Gaming Disorder Symptoms

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Abstract

This paper investigates how bibliotherapy can influence Internet Gaming Disorder symptoms, based on criteria established from the DSM-5. To address this research question, an experimental design type was used. The participants in the study came from Calabasas High School, and it included students who exhibited high levels of Internet Gaming Disorder symptoms. These students went through a series of reading sessions similar to bibliotherapy and the Internet Gaming Disorder symptom change was recorded. Of the nine current symptoms, seven were analyzed in the study, and it was found that in the majority of cases, reading sessions resulted in reduced Internet Gaming Disorder symptoms. Future studies should be conducted over a greater time period, with a check up on participants after the study in the future. This should be done, so that all nine symptoms of Internet Gaming Disorder can be analyzed and relapse can be measured for participants in the study.

Keywords: Bibliotherapy, Internet Gaming Disorder, DSM-5, Behavioral Disorder

Introduction

Most information on addiction comes from the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* [DSM-5] and the *International Classification of Diseases* (ICD). In 1948 the World Health Organization [WHO] took ownership of the ICD, and published the most recent edition of the *ICD - ICD 10* - in 1992 (Raminani, 2015). The DSM is what medical professionals in the United States use to diagnose patients with mental disorders (Regier, 2013). It was created in 1952 by the American Psychiatric Association [APA] and the latest edition of the book was published in 2013 (Regier, 2013). WHO has gotten permission from APA to publish many diagnostics similar to the approaches in the DSM-4 in the ICD 10 (Regier, 2013). The DSM-5 is more recent, and therefore would have more modern approaches to diagnosing an addiction. Furthermore, the majority of research conducted on Internet Gaming Disorder [IGD] comes from information by the DSM-5 (Raminani, 2015). The United States and other countries use an altered version of the ICD 10 as guidelines for diagnosis, but the DSM-5 is universally accepted and therefore most researchers base their data off the DSM-5 (Raminani, 2015).

Often times addictions and compulsive behaviors are confused due to their similarities, but there are profound differences. Dr. Steve Sussman (2011), a professor of preventive medicine, psychology, and social work at the University of Southern California, found that compulsive behaviors are “an intense ego dystonic (separate from self) urge to engage in a simple, repetitive activity, to remove anxiety.”

Addiction, on the other hand is when an “individual attempts to achieve some appetitive effect and satiation through engagement in some behavior” (Sussman, 2011). Although compulsive and addictive behaviors seem similar, the key difference between the two is that people who have compulsive behaviors do not engage in their impulse for pleasure, rather they strictly engage in their compulsion to reduce anxiety. This distinction of addiction from compulsion shows why IGD is an addiction and not a compulsive disorder. Most individuals that have IGD play a game not to reduce anxiety, but rather for the excitement that comes from playing a game (Sussman, 2011).

Within the category of addictions, there are two major types of addiction: behavioral and substance addiction, which have many similarities. Dr. Seyyed Salman Alavi (2012), who has a PhD in clinical psychology and is a professor at the Tehran University of Medical Science, has determined that “behavioral addictions only indirectly affect the neurotransmitter systems of the brain, and can serve as reinforcers comparable to pharmacological substances that directly affect these systems (e.g., dopaminergic system).” However, the difference between the two addictions is the medium that is used, “individuals (with a behavioral addiction) are not addicted to a substance, but they are addicted to the behavior or the feeling experienced by acting out the behavior” (Alavi, 2012). This distinction would indicate that IGD is a behavioral addiction, not a substance addiction and should be treated as such. Weinstock (2016), who works in the department of psychology at Saint Louis University, has confirmed that the authors of the DSM 5 also hypothesize IGD is a behavioral disorder, but they claim that further research should be conducted.

The DSM 5 has given vague criteria as guidelines to diagnose IGD, which has caused tension in the medical community. In fact, Dr. Daria Kuss (2017), a chartered psychologist and senior lecturer in psychology and a member of the Psychology Division and International Gaming Research Unit at Nottingham Trent University, has stated that “the DSM-5 has caused more confusion than clarity regarding the disorder.” Nevertheless, Dr. Hoon Jung Koo, (2017) a PhD holder in computer science from Columbia University, has tried to diagnose IGD. Relying on the assumption that IGD is a behavioral disorder, Koo created his survey based on “existing, psychometrically established instruments” (Koo 2017). He followed the guidelines to diagnose IGD established by the DSM-5, which included “preoccupation, withdrawal, tolerance, loss of control (DSM-5 criteria; ‘unsuccessful attempt to control’ and ‘continue despite problems’), mood modification (DSM-5 criteria; ‘escape’), and negative consequences (DSM-5 criteria; ‘loss of interest’, ‘deceive’, ‘jeopardize’)” to create his own survey (Koo, 2017). He then made a diagnostic survey and administered the survey to a group of 236 adolescents, of which 12 he determined had IGD (Koo, 2017). When the twelve adolescents were diagnosed by a psychiatrist, it was found that eight out of the 12 (66.7%) were diagnosed as having IGD by the psychiatrist’s clinical interview (Koo, 2017). This showed that there are tests that have been developed that have a reasonable success rate and can diagnose IGD. Though not perfect, these tests may in the future be used as templates in creating more accurate IGD diagnosis tests. Similarly, an earlier study by Dr. Halley Pontes (2014), a clinical psychologist and lecturer in psychology in the United Kingdom, developed a test [IGD-20 Test], which relied on the same criteria as Koo’s test for diagnosing IGD: “salience, mood modification, tolerance, withdrawal, conflict and relapse.” Both of these tests use a similar method to diagnose IGD: a survey and are fairly successful at diagnosing IGD. In the future, if researchers would like to diagnose IGD, it would be likely they too would use a survey to diagnose the disorder because it is inexpensive and efficient.

Gambling disorder is currently the only condition defined as a behavioral disorder in the DSM-5 (Weinstein, 2014). Many studies have shown that there are similarities between gambling disorder and IGD. Luke Clark (2014), the inaugural director of the Centre for Gambling Research at UBC, has determined that IGD and gambling disorder use a similar model, in which “actions within a video game

generate bivalent outcomes, and that it is self-evident that humans will work to achieve symbolic gains and avoid symbolic losses in much the same way as for monetary outcomes” (p. 55). Since they operate in a similar way, they may respond similarly to external factors. Pawel Slecza (2015), author of entries in the Journal of Behavioral Addictions, conducted a study to identify which of the nine criteria is the best indicator of gambling disorder. He analyzed answers from a 19-item diagnostic questionnaire that slot machine gamblers took, and found that “bailout, withdrawal and jeopardized matters” were the most common symptoms among addicts (Slecza, 2015). One of the drawbacks to his study was that he assumed that all participants had an equal degree of addiction. This may have affected the results of the study if one of the symptoms is more prevalent at higher addiction levels, or if some symptoms only appear at higher levels of addiction. In a study conducted by Sam-Wook Choi (2014), who has a PhD in psychiatry, fifteen participants were put into three groups: Internet Gaming Disorder [IGD], Alcohol Use Disorder [AUD], and Gambling Disorder [GD]. He found that in comparison to the gambling disorder group, “the IGD and AUD groups scored significantly higher on the BIS-11” (p. 246). The BIS-11 is a questionnaire that determines how impulsive an individual is (Choi, 2014). Since impulse control is lower in patients with IGD, this shows that in terms of this symptom, IGD is more closely related to alcohol disorder than gambling disorder. Though IGD is similar to other disorders, it is not identical to them, and therefore may have different symptoms that are apparent for social gamers and problem ones.

Since gambling disorder has already been heavily researched, there have been treatment methods developed for it. There are three steps in rehabilitating individuals with addictions in general. Yvonne H. C. Yau (2015), a graduate of Yale University with a master’s degree in psychiatry, has found that the first step is to “achieve sustained abstinence in a safe manner that reduces immediate withdrawal symptoms.” The second step is to try to avoid cravings by using medications or behavioral treatments (Yau, 2015). The third step, relapse prevention, is the most difficult step because it tries to avoid addiction in the long run (Yau, 2015). Most clinicians focus on short-term end of addictive symptoms because it is more achievable (Yau, 2015). Carla J. Rash (2014), who earned her doctorate in clinical psychology at Louisiana State University, has suggested that an inexpensive, yet relatively beneficial treatment for gambling disorder is bibliotherapy. Dr. Leonard Levin (2013), a professor in the Departments of Ophthalmology and Neurology and Neurosurgery at McGill University, defined bibliotherapy as “the use of reading as a means of healing.” Furthermore, Rash (2014), has asserted that bibliotherapy can be a useful therapy method on its own “but it appears that supplementing these materials with some therapist contact, either by phone or in person, improved outcomes in most studies” (p. 285). Rash also reported that bibliotherapy “generates small to medium effect sizes compared to no treatment controls” (Rash, 2016).

Bibliotherapy has some strict guidelines that must be followed when administering the treatment. However, the underlying concept of the treatment is very straight forward. As explained by Yuan et al. (2018), a professor at the Institute of Neuroscience and the Collaborative Innovation Center for Brain Science, bibliotherapy “uses a self-help book to guide and encourage a patient to challenge unhelpful thoughts and behaviors, resulting in improved self-management, rather than just providing information.” Jernelöv (2012), who works at the Department of Clinical Neuroscience at the Karolinska Institutet, has claimed that self-help books are very specific to their field and cannot be found at traditionally libraries, and as a result, these books need to be referred by a therapist or other professional in the field. Dr. Rohde (2012), who works at the Oregon Research Institute, has determined that bibliotherapy is most effective when there are a set amount of procedures, sessions, and duration for the entire program. The set amount of sessions are either restricted by amount of time spent reading or amount of pages read (Rohde, Stice, Gau, & Marti, 2012). Since people read at different paces, it seems restricting sessions by page numbers is more effective, because that way all participants are starting and ending each session at the same page number and have equal amount of exposure to the book.

Bibliotherapy has shown promise in treating other behavioral disorders; however, there are a few limitations to the process. Most importantly, since there are different personality types the most effective form of therapy is different for each person and bibliotherapy may not work on every type of patient. In fact, Karin Kramer (2009), who has a bachelor's and administration degree from the University of Calgary in psychiatry, has claimed "that individuals with cognitive difficulties such as concentration or memory problems are not likely to do well with self-help books." This may make it so that bibliotherapy is only suitable for patients that either have a fondness for reading or are willing to concentrate on the meaning of a book. Similarly, bibliotherapy is only effective for lower risk patients. As described by R.J. Gregory, who is a professor of psychiatry at Syracuse University, for patients with severe depression, "self-help interventions are not appropriate because of high suicide risk" (Kramer, 2009). Though addressing IGD is not the same as treating depression, this study indicates that at higher levels of a disorder, patients may respond less to bibliotherapy treatment.

The inexpensive nature of Bibliotherapy makes it an efficient tool in treating problems for those who cannot afford an expensive therapist. It has shown to be useful in treating other behavioral disorders and could be a promising tool in reducing the symptoms of IGD, which is the current gap in research. Can IGD symptoms be reduced through the use of bibliotherapy sessions?

Research methodology

The population, sample and sampling

Design

An experimental design was used to determine if bibliotherapy can effectively reduce videogame disorder symptoms. This design type is the most applicable for this topic, because it deals with multiple quantitative variables and allows researchers to determine if they are positively or negatively related. Since there is no already existing data to refer to for this project, an experiment is the most viable option, because it creates this data.

Variables

There are two main variables in this research study: amount of reading sessions and the symptoms. The symptoms and their prominence have been measured on a Likert scale and are the dependent variable in the study. The reason that this is the dependent variable, is because it is subject to change for each participant and its change or lack of change will be dependent on the reading sessions (i.e., the independent variable). The reading sessions will be the independent variable, because all the participants in the treatment group will have the same amount of sessions. The symptoms of IGD: (1) preoccupation of internet games, (2) a build-up of tolerance, the person has attempted to stop playing games in the past, but is unable to do so, (3) the person has a loss of interest in other activities, (4) the person continues to play videogames even though they are aware of the consequences in real life of playing so much, (5) the person has lied about their frequency of game play, (6) the person uses video games to escape real world problems, (7) the person has either lost or put a relationship in danger because of their overuse of video games, were correlated to the reading sessions individually, question by question. The symptom of withdrawal and tolerance was omitted from this study, because they are more long term and cannot be fit into the time frame of this project. This has been done so that it can be analyzed if certain symptoms correlate with a greater reduction than others after exposure to the reading sessions.

Participants

Dr. Lena Magardechian, who has a PSYD, is a Psychologist who was interviewed for this study in order to gain insight on how to properly conduct this research study. Dr. Magardechian made the suggestion after the interview to use the book, *How to overcome video game addiction: Stop being addicted to video*

games and play the game of life instead (Peplinski,) Together, we decided that participants in this study should read thirty pages in each session, for a total of eight sessions with the duration of the procedure being a total of four weeks. All the participants in the study came from Calabasas High School (9th - 12th grade) located in the Los Angeles, California. All the participants were volunteers and were offered no incentive to join or finish the study. The inclusion criteria for this study was that the participants had to currently be attending Calabasas High School and self-reported having four out of the seven following symptoms at a three or higher level on the Likert scale (i.e., which is out of 5).

Materials and Instruments

The materials in this study consisted of the book recommended by Dr. Lena Magardechian, which is a 247 page self-help manual, written by Matt Peplinski, titled, "How to overcome video game addiction: Stop being addicted to video games and play the game of life instead." Another instrument that was used in this study was a seven question survey that was created based off of pre-existing surveys to diagnose IGD (ie., IGD-20 Test) in order to assess how often the participants played video games and how it affected their day to day life. Lastly, Google software was used to create a form (i.e., Internet Lifestyle Questionnaire) in order to compile the data along with a human consent form that was signed by parents and students.

Procedure

To conduct this study, the first step was to consult a teacher and ask them to give their students the survey that I had made. An email was sent out to the student body of CHS in order to collect the sample. Of the 234 students that responded to the survey, thirty one met the criteria to be included in the experiment. These students that met this requirement were then emailed and invited to the bibliotherapy research being conducted. Of the thirty one contacted, eight responded back willing to participate in the research. Afterwards I contacted a psychologist I had met on the internet, Dr. Lena Magardechian, who advised, which book to use and a potential way to conduct my bibliotherapy procedure based off of past implementations of bibliotherapy. The participants in the treatment took the Internet Lifestyle Questionnaire before any treatment, and took it once again, after the treatment group had undergone eight reading sessions. Participants were required to read thirty pages per session for a total of eight sessions (i.e., total of sessions), which was on every Tuesday and Thursday of the four weeks of the study. The treatment group was also asked to take the teachings of the book into consideration when living their day-to-day life. There was no regulation in place to make sure students read, it was largely based off of integrity and people choosing to stick to the pace that was already established.

The Analysis of Data

The data in the treatment group was initially analyzed using a paired t test to determine if there was any difference between the results of the Likert chart pre and post treatment. Each question analyzed a different symptom of IGD and as a result the impact of the reading sessions was assessed and compared to the results of each individual question. A five on the Likert chart of a question indicated that the participant had a high appearance of the particular symptom that the question gauged and a one indicated the opposite. If many participants experienced little to no change pre and post treatment after the reading sessions, the paired t test would produce a higher p-value. The higher a p-value, the more likely that the reading sessions had little to no influence on the appearance of a symptom associated with a question. If the p-value (alpha) was less than 0.05 then the pre and post treatment results was determined to be different enough to come to the conclusion that increased reading sessions was correlated in the reduction of symptom appearance.

Table 1
Pre and Posttest Survey Results for Question 1 and Paired t Test

Question 1	Pretest	Posttest	D_i	Mean	SD	Sample Size	
Participant A	4	2	2	1	0.75592894	n = 8	p= 0.004
Participant B	2	2	0				
Participant C	5	3	2				
Participant D	3	3	0				
Participant E	4	3	1				
Participant F	2	1	1				
Participant G	4	3	1				
Participant H	4	3	1				

Question one was “Do you ever play videogames even though you know you may experience some sort of consequence in real life?” This question was used to determine if participants had continued overuse of internet games even with the knowledge of how much they impact a person’s life. Of the eight participants, six had a high appearance of this symptom. All six of these patients reported a reduction in this symptom after exposure to the reading sessions. For the other two, one had no reduction in appearance of the symptom. However, the other also had a reduction in appearance of this symptom. Since the majority of the values went down from the pretest values, there was a low p-value (.004), which is lower than the established alpha value. This leads to the conclusion that more reading sessions of the book *How to overcome video game addiction: Stop being addicted to video games and play the game of life instead* (Peplinski, 2017) which is correlated with a reduction in the display of the preoccupation symptom.

Table 2
Pre and PostTest Survey Results for Question 2 and Paired t Test

Question 2	Pretest	Posttest	D_i	Mean	SD	Sample Size	P-Value Sided	1
Participant A	4	4	0	1	1.069	n=8	p=0.016	
Participant B	5	5	0					
Participant C	5	2	3					
Participant D	3	3	0					
Participant E	3	2	1					
Participant F	3	1	2					
Participant G	3	2	1					

Participant H	3	2	1				
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The second question was “How often do video games interfere with school work?” The question assessed if the participant had a preoccupation with videogames, which is one of the symptoms of IGD. All 8 of the participants had a high display of this symptom, which is higher than any other question. The pre and post treatment Likert chart values decreased for most participants, but two people in the treatment group experienced no change. Some participants in the treatment group that did experience change, had substantial change in Likert scale values. For instance, participant C and F experienced change by two and three Likert scale values, respectively. The resulting p-value (0.016) that was established from the data was very low in comparison to the alpha level, indicating that there was still a significant change in pre and post treatment. The increase of reading sessions correlated with a lower, overall appearance of the preoccupation symptom.

Table 3
Pre and Post Test Survey Results for Question 3 and Paired t Test

Question 3	Pretest	Posttest	D _i	Mean	SD	Sample Size	P-Value Sided	1
Participant A	1	1	0	0.125	0.641	n=8	0.299	
Participant B	3	4	-1					
Participant C	1	1	0					
Participant D	4	4	0					
Participant E	2	2	0					
Participant F	1	1	0					
Participant G	3	2	1					
Participant H	3	2	1					

The third question, “how often have you tried to quit playing video games but failed”, had the lowest level of decrease, which corresponded to the symptom of trying to quit, but failing to do so. Of the eight participants that had the symptom, only four reported having a high appearance of the symptom in the pre-survey test. Since the Likert values began at lower levels, it was more difficult to change these values to go any lower, through the use of the treatment. Two of the eight participants experienced nominal reduction in the symptom, and one participant even reported a higher appearance of the symptom. The p-value (0.299) that was found from a paired t test, was much larger than the alpha value and therefore it cannot be concluded that reading sessions reduce patients showing this symptom. Overall question three was the least successful at finding a negative correlation between additional reading sessions and appearance of symptom.

Table 4
Pre and PostTest Survey Results for Question 4 and Paired t Test

Question 4	Pretest	Posttest	D _i	Mean	SD	Sample Size	P-Value Sided	1
Participant A	3	1	2	0.75	0.886	n=8	p= 0.024	

Participant B	1	1	0				
Participant C	3	1	2				
Participant D	1	1	0				
Participant E	3	2	1				
Participant F	3	2	1				
Participant G	2	2	0				
Participant H	2	2	0				

The fourth question, “How often do video games get in the way of extracurriculars,” did not receive many high values on the Likert chart on the pretest, with the highest score being a three, which appeared four times. The question was intended to determine if participants had lost interest in other hobbies or if videogames interfered with these hobbies. This symptom had a substantial change in participants A and C, but for others there was a little change, if any. Due to the high change in Likert scale value by participant A and C, there was a low p-value (0.024), which is less than alpha, and therefore it can be concluded that the addition of reading sessions correlated with a lower appearance of video games interfering with hobbies. Though there was a low p-value, it should be noted that only fifty percent of the participants in the treatment group experienced any change.

Table 5
Pre and PostTest Survey Results for Question 5 and Paired t Test

Question 5	Pretest	Posttest	D_i	Mean	SD	Sample Size	P-Value Sided	1
Participant A	3	2	1	0.75	0.707	n=8	p=0.01	
Participant B	2	2	0					
Participant C	1	1	0					
Participant D	1	1	0					
Participant E	3	1	2					
Participant F	2	1	1					
Participant G	3	2	1					
Participant H	3	2	1					

Question 5, “How often do you lie about how much time you have spent playing video games,” focuses on the symptom regarding lying about video game usage. Surprisingly, not very many participants lied about how often they played video games to their parents or other peers in the pretest survey. There was a general decreasing trend for most participants Likert scale values, and not only for the ones that started with high symptoms. Even those who did not have a high appearance of a symptom benefited from the reading sessions and had a lower appearance of the lying symptom. This is very significant considering that as the Likert scale values become lower it is harder to reduce them. The p-value (0.01) was very low

and indicated that the reading sessions was associated with lower levels of lying about how often participants played video games.

Table 6
Pre and PostTest Survey Results for Question 6 and Paired t Test

Participant A	5	3	2	0.75	0.886	n=8	p=.0239
Participant B	4	4	0				
Participant C	4	3	1				
Participant D	5	4	1				
Participant E	3	3	0				
Participant F	4	2	2				
Participant G	4	4	0				
Participant H	4	4	0				

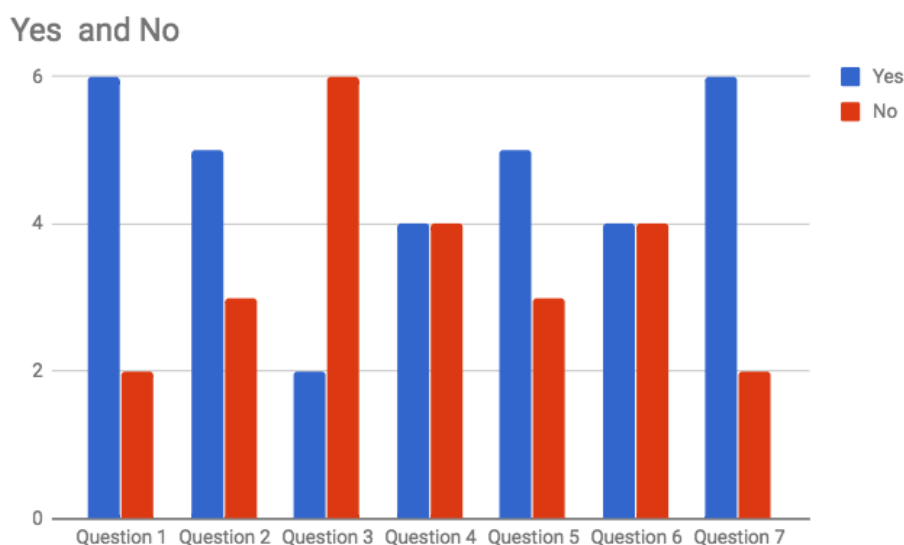
Question 6 had high Likert scale values for all eight participants in the pretest segment of the study. The question was “how often do you play videogames to relieve stress or detach from problems in the real world.” This question was very straight forward and tested the symptom of using video games as a means for escaping real world problems. Though all eight participants score highly on the pretest, only four of the eight experienced any change in the posttreatment survey. Seven of the eight participants still responded that they had a high appearance of the symptom even after the reading sessions. Since the Likert scale changes were high among participants A and F, there was still a low p-value (0.0239). The p-value indicates that there was a change from pre and post treatment; however, since the vast majority of participants still reported a high appearance of the symptom, the significance of this change is questionable.

Table 7
Pre and PostTest Survey Results for Question 7 and Paired t Test

Question 7	Pretest	Posttest	D_i	Mean	SD	Sample Size	P-Value Sided	1
Participant A	4	3	1	1	0.756	n=8	p=0.004	
Participant B	4	4	0					
Participant C	4	2	2					
Participant D	3	3	0					
Participant E	3	1	2					
Participant F	3	2	1					
Participant G	5	4	1					
Participant H	5	4	1					

All eight patients had high values for question seven, which was “how often have you placed videogames before a relationship (boyfriend/girlfriend, with friends, or family)?” Three of the eight participants went from a high appearance of the symptom to a low appearance, after the reading sessions. However, the rest five still had high appearances of the symptom, even after the reading sessions. Many of the high values in the study decreased, and only two participants had no influence at all by the reading sessions. Since change occurred for the majority of participants, there was a very low p-value (0.004) and the reading sessions were strongly correlated with a reduction for this symptom. Having the lowest p-value in comparison to any other question, the negative correlation between additional readings sessions and the appearance of the symptom associated with putting video games before a relationship was the strongest in the study.

Figure 1
Bar Graph of the Participants that Experienced Change



Since the paired t-test creates lower p-values if there are higher amounts of change, one or two high values of change significantly reduced the p-values of certain questions. This graph was used to visually understand how many participants experienced change, regardless of how dramatic that change was. This graph shows that no question created a 100% change for all the participants. There were also a few participants that did not benefit from the reading sessions. In question four and six the amount of people that experienced no change and those who did experience change was equal, and in question three there were significantly more people that experienced no change. For the other five questions the reading sessions did correlate with lower appearances of symptoms.

Conclusion

The participants in the treatment group were offered no incentive to join the reading sessions. This was done to make sure that the participants were self-driven and their desire to improve was genuine and not fueled by greedy reasons. The reading sessions would only affect participants that were willing to fully understand and implement the ideas from the book, *How to overcome video game addiction: Stop being addicted to video games and play the game of life instead* (Peplinski, 2017). Furthermore, the surveys

were self-reported and the reading sessions were largely self-monitored. Those who were willing to join the experiment without any incentive were more likely to stay on track with the reading session and answer the questions to the survey honestly and accurately. Due to its very niche nature, only a few people were eligible for the procedure, and of those people, an even fewer amount of people were willing to participate in the procedure. These restrictions resulted in a sample size of eight people in the treatment group. No participant dropped out of the experiment and all participants answered questions promptly before and after the treatment upon receiving an email to do so on the days of those reading sessions.

As for the data analysis, certain participants consistently reported that the reading sessions had little to no effect on their day to day life and that there reported symptoms stayed at their same level (ie. Figure 8). However on the other extreme, other participants reported to have almost all of their symptoms reduce after the reading sessions (ie. Figure 8). Most other participants fell in between these two extremes, having some symptoms still present at the same level and having others reduced. For certain questions, people who had a significant change (2 or more points) in Likert scale value, immensely decreased the p-value. The paired t test proved that in terms of the entire sample the reading sessions, in most cases, correlated with lower appearance of IGD symptoms.

Practical suggestions

As was mentioned in the introduction, it seems that even if people are willing to participate in bibliotherapy treatment, it is not effective for everyone. Since there are different reading comprehension levels, some people may have benefited more from the treatment than others. Those who benefited from the reading sessions experienced significant change, and that too was in a very short time frame. Considering that the procedure was four weeks, it is very impressive that the reading sessions correlated with a reduction in symptoms for some people by one and sometimes potentially two points on the Likert scale. Further research should be conducted to identify what the trends among people who react well to bibliotherapy are, and this should be taken into consideration when implementing a therapy plan. Nevertheless, the research suggests that an inexpensive way to potentially reduce IGD symptoms is through the use of bibliotherapy.

The primary limitations exist in the sample size of the study and the self-pacing component to the reading sessions. The sample size was small, because only a few select people have IGD symptoms at Calabasas High School, and of those people only a few were willing to participate in the treatment group. The research could be applied to make a prediction about how the population would respond to bibliotherapy, if there was a larger sample in the study. Furthermore, since the reading sessions were self-paced, some students may not have maintained the suggested pace that was recommended, which could have influenced the results of the data. The two symptoms that were omitted from the study are also a limitation, because the study never addressed the correlation between these symptoms and bibliotherapy. Another study should be conducted with a larger time frame, more participants, and a follow up survey should be given six-months after the treatment.

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Appendix A

IGD Diagnostic Survey by Dr. Young Jung

DSM-5 diagnostic criteria	Clinician		Sen (%)	Spe (%)	LR+	LR-	
	SCI-	+					-
	IGD	FN					TN
1. Preoccupation		22	10	61.1	86.7	4.59	0.45
Do you have recurrent thoughts about playing games when you are not playing? (e.g., thinking about the previous game or fantasizing about future game)		14	65				
2. Withdrawal		3	3	50.0	97.1	16.67	0.52
Do you usually feel restless or irritable when you are unable to play or when you attempt to stop playing?		3	102				
3. Tolerance		4	11	66.7	89.5	6.35	0.37
Do you need to spend more time to achieve the desired or expected amount of satisfaction and sense of accomplishment?		2	94				
4. Unsuccessful attempts to control		10	9	47.6	90.0	4.76	0.58
Have you made repeated unsuccessful attempts to control, cut down, or stop playing?		11	81				
5. Loss of interest		7	6	63.6	94.0	12.72	0.38
Have you lost interest in previous hobbies and entertainment as a result of gaming?		4	94				
6. Continue despite problems		15	11	71.4	87.8	5.85	0.33
a. Do you continue to play games despite troubles at work or school?		6	79				
b. (If criteria 9 is positive) Do you continue to play the game despite knowledge of that you should stop playing game games even though you are aware of negative consequences?							
7. Deceive		13	12	59.1	86.5	4.38	0.47
Have you tried to hide or deceive the time of gaming?		9	77				
8. Escape		0	17	00.0	84.5	0.00	1.18
Do you play gaming to escape or relieve negative or uncomfortable feelings (e.g., daily stress, feelings of helplessness, guilt, depression, anxiety, irritability, boredom)?		1	93				
9. Jeopardized or lost a significant relationship/job/educational opportunities		32	16	72.7	76.1	3.04	0.36
a. Have you neglected schoolwork or your other duties because of gaming?		12	51				
b. Have you ever been late or absent from school, or leave school early in order to play games longer?							
c. Do you have any conflicts with parents, peers, or any other significant others because of gaming?							
Final diagnosis		8	4	57.1	95.9	10.93	0.35
		6	93				

Table A1
Internet Lifestyle Questionnaire

1	Do you ever play videogames even though you know you may experience some sort of consequence?	1 2 3 4 5
2	How often do video games interfere with school work?	1 2 3 4 5

3	How often have you tried to quit playing video games but failed?	1 2 3 4 5
4	How often do video games get in the way of extracurriculars?	1 2 3 4 5
5	How often do you lie about how much time you have spent playing video games?	1 2 3 4 5
6	How often do you play videogames to relieve stress or detach from problems in the real world?	1 2 3 4 5
7	How often have you placed videogames before a relationship (boyfriend/girlfriend, with friends, or family)?	1 2 3 4 5