

Efficacy of Behaviour Modification Therapy on the Internet Gaming Disorder of the Selected Filipino High School Students

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Abstract

The excessive use of Internet in online gaming afflicted several adolescent students in such a way that they found it hard to control their gaming behaviour anymore. There were a lot of studies done as to the causes of this modern-day addiction but there was scarcity on the therapy program that will address the problematic thoughts and feelings associated with this behaviour. This study aimed to devise a Behaviour Modification Therapy (BMT) program that will reduce the frequency, intensity, and duration of their online gaming. In developing the therapy, a mixed method of quantitative and qualitative research using sequential explanatory design was utilized. This was composed of collection and analysis of quantitative data through pre-test on Internet Gaming Disorder (IGD) 20-Test; compilation of qualitative data through related literatures and studies, Focused Group Discussions (FGD) and Training Needs Analysis (TNA). The data were used as bases in designing the eight (8) sessions of BMT. The respondents included in this research were the 11-19 years old public high school students who experienced excessive internet gaming. After the therapy sessions the post test on the (IGD) 20-Test was administered and the *t*-Test was used to find the difference. The Behaviour Modification Therapy was helpful and efficacious in reducing the IGD symptoms of the respondents. This can be adapted as psychotherapy for IGD.

Keywords: behaviour modification therapy, internet gaming disorder, adolescent students

Introduction

The excessive use of the Internet in online gaming is an addictive behaviour that afflicts adolescent students in such a way that they find it hard to stop playing virtual games. Online games were bestsellers for the young people. In the Philippines, there were 18% males and 10% females from the bracket of 10-20 years old who were virtual gamers in 2017 (Sanchez, 2019). There were different kinds of online games which drew curiosity among them that they would like to try it once or twice, until it became their source of leisure, then it became an excessive habit. They wanted to control their gaming behaviour, but they cannot do it by themselves. This negatively impacted their health, way of thinking, social life, family relationships, academic performance and state of wellbeing.

This type of modern day addiction was termed as “Internet Gaming Disorder” (IGD) by the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM 5) (American Psychiatric Association, 2013) and described in the 11th Revision of the International Classification of Diseases (ICD-11) (World Health Organization, 2018) as a “pattern of gaming behaviour (digital-gaming or video-gaming) characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences”.

DSM 5 (American Psychiatric Association, 2013) described the IGD as persistent and recurrent use of Internet to engage in games alone or with other players which leads to clinical impairment or distress. IGD is considered clinically significant if there will be the presence of five or more symptoms in a 12-month period. The nine (9) IGD symptoms can be: 1) preoccupation with Internet Games; 2) withdrawal symptoms like irritability, anxiety and sadness; 3) tolerance or the need to increase time in gaming; 4) unsuccessful attempt to stop gaming; 5) loss of interest in other activities; 6) psychosocial problems due to excessive gaming; 7) deceived family members, therapist or others on the amount of time in gaming; 8) use of Internet gaming to escape or relieve negative mood; and 9) jeopardized or lost significant relationship, educational, job or career opportunities because of online gaming. The severity of Internet Gaming Disorder can be classified as mild, moderate, or severe. The online gamers, who have greater problems in relationships, school performances or career or opportunities because of longer hours spent on virtual gaming, were the ones considered to have the severe level of IGD.

According to King and Delfabbro (2016), the population considered to have the higher risk of developing Internet gaming disorder (IGD) are those in the adolescent stage. Those who spent more than 30 hours per week in playing online games were included to those who have maladaptive behaviour described in IGD. The students in the high school level were considered in the adolescent stage. Allen and Waterman (2019) described the stages of adolescence as early adolescence (ages 10 to 13); middle adolescence (ages 14 to 17); and late adolescents (ages 18 to 21). Cochiti and Cowen (2002) cited that adolescence had been characterized as a period of “storm and stress” (Hall, 1904) wherein at this stage, adolescents experienced mood disruptions, risk behaviours, and conflict with parents (Arnett, 1999); and this particular span in developmental stages generated more turmoil than either childhood or adulthood (Resnick et al., 1997). The high school students had conflict with parents especially when they were reprimanded about their excessive online gaming which was considered a risky behaviour. As adolescents, they would like to explore and experience new things for themselves. They were focused more on about themselves and what they wanted. They did not consider the

consequences that they may suffer after long hours of online gaming. Watson (2013) stated that the use of Internet in online gaming has the potential to be addictive to number of players especially the adolescents who were vulnerable. The adolescents' vulnerability to addiction was due to their developing nature of the brain. Thus, at this developing stage, they still needed the guidance from their parents. If they would not heed to the guidance of their parents and other stakeholders to adhere to a program that may help them in processing their thoughts and modifying their behavior, then the intervention would not be feasible.

Pawlikowski et al. (2018) mentioned that there were adolescents who were very shy in the real world and found the virtual world as the avenue in expressing the wild side of their personality wherein they could be confident especially if they gained high scores and had the approval of the online friends. Anderson et al. (2016) noticed that cyber gamers were more willing to create cyber personality to reach out to other virtual characters in the computer-generated world.

Previous researchers elaborated that when the virtual gamers experience boredom and overwhelming problems, they used online gaming as a mood modification strategy and virtual escape. Cross et al. (2016) revealed that they play virtual games to escape from negative feelings and the cycle of escapism turned to become obsessive passion. Those with IGD showed deficits in making decisions and tend to search for immediate gratification or reward (Seok & Sohn, 2018; Wang et al., 2017). This caused troubles in their cognition and psychological distress. Adolescents with IGD have a distinctive set of maladaptive beliefs and these maladaptive beliefs include the adherence to inflexible and maladaptive rules about behaviours during online gaming; positive expectation about the sure reward that they will receive from winning or levelling up in the game; recognition as best online players to gain social acceptance; and over-confidence to online gaming as an instrument to satisfy their need for self-esteem (King & Delfabbro, 2016).

The persistent cyber gaming activities had negative health consequences to the players. Rehbein et al. (2015) reported that students with IGD complained about lack of sleep and other sleep problems more often; they usually spent a lot of time gaming that they already forgot to eat (Young, 2009); and had decreased auditory and visual and functioning (Kuss, et al., 2018). They cannot control their behaviour because according to Kuss and Lopez (2016) gaming fanatics have poorer emotion regulation and reduced response-inhibition because their cognitive control and working memory had decreased its capacity.

Kim et al. (2017) pointed out that what leads to the impairment particularly of addiction disorders were what feed the adaptive behaviour. Orbatu et al. (2019) pointed out that internet gaming disorder can be handled within the framework of a behavioural dependency. The cyber-formulated rewards of online games caused a malfunction in the normal reward circuits of the brain. Lim, et al. (2016) confirmed that IGD patients had more symptoms of higher levels of distress, higher degrees of impulsiveness, anger or aggression, depression and anxiety, impaired response inhibition and poorer quality of life. The program of the games was problematic and chaotic that brought disturbance to the mind of the adolescents because it deals more on horror and violence. Teigland and Power (2013) stressed out if the player was already aggressive and was exposed also in an aggressive environment and violent games, the aggressive temperament may level up.

When they tried to lessen the frequency and intensity of their gaming, they experienced the negative emotional impacts of withdrawal. They felt more anxious about the game, sad when not gaming and became aggressive to people around them. The negative impact of IGD on

their emotional state created problems and conflicts. Kiraly et al. (2015) stated that those who usually spend a lot of hours playing online game did not have interest in wholesome activities and neglected their responsibilities to their family, their studies and had frequent disagreements with the family members and friends. This situation led to the poor academic performance, inactive social life, and dissatisfaction on one's well-being (Wallace, 2014). As explained by Weinstein (2017), those with IGD experienced withdrawal symptoms and tolerance similar with substance use addictions. Griffiths (2014) observed that addictions share more on similarities. The sameness of their actions can be in mood, tolerance, modification, conflict, salience, withdrawal symptoms and relapse.

The increasing number of adolescents afflicted by Internet Gaming Disorder was of great concern. These youth needed assistance to help them change their excessive online gaming. The psychotherapy that could address their problematic thoughts and feelings associated with their excessive virtual gaming could be a great support for them. Hence, the main purpose of this research was to develop and implement a Behaviour Modification Therapy (BMT) program that would reduce the frequency, intensity, duration, and symptoms of their online gaming.

That Behaviour Modification Therapy (BMT) developed in this research was anchored on the Cognitive Behaviour Therapy (CBT) principles and techniques of Meichenbaum's Cognitive Behavior Therapy (CBT). Fernandes and Sadhana (2016) confirmed the effectiveness of CBT in treating several behavioural and emotional problems and it was affirmed by many therapists. CBT was effective in treating individuals who acquired psychological distress from virtual gaming addiction (Kuss & Lopez-Fernandez, 2016; Lindenbergh, et al., 2017; Vasiliu & Vasile, 2017). CBT treatment offers corrective measures in cognitive processing, identifying, and correcting irrational thoughts to a more rational one. The experiences of the adolescents on their excessive virtual gaming needed a supportive intervention. Percy et al. (2016) stated that studies and interventions for virtual gaming were very relevant and timely for this case. Woog (2016) recommended the treatment intervention focusing on behavioural management method which involved the gradual decrease in time spent in virtual gaming. The facilitation of BMT techniques could promote productive activities; improvement on the school performance; harmonious relationship with the family and the community; and enhancement of the well-being of the participants. Figure 1 presents the conceptual design of the research.

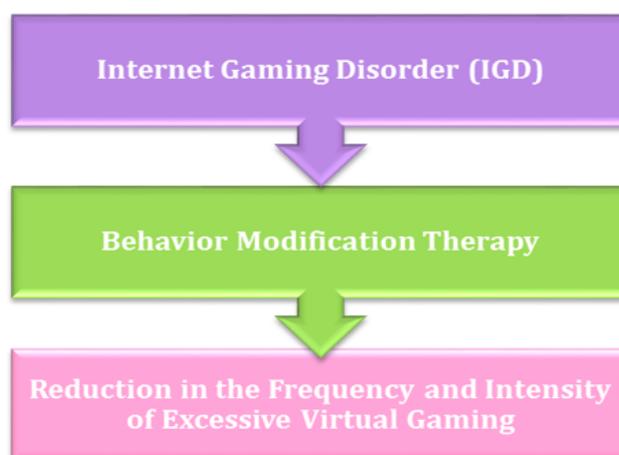


Figure 1: Research Conceptual Framework

The figure showed the conceptualization of the experiences of the respondents in terms of Internet Gaming Disorder (IGD) that according to Beck sprung out from their negative and irrational thought processes (Corey, 2013). This also illustrated the Behaviour Modification Therapy (BMT) designed for the cognitive restructuring, proper emotion handling and modification strategies for the respondents. There were a lot of studies done as to the causes of Internet Gaming Disorder but there was scarcity on the therapy program for high school students that will address their problematic thoughts and feelings associated with this excessive online gaming. This study followed the protocols in devising and implementing the BMT program. This could serve as a model in developing a group therapy for the participants with IGD. The BMT could reduce the IGD symptoms of the participants.

There were two most important objectives of this research. The first objective was to reduce the frequency and intensity of excessive online gaming of the respondents and the second objective was to develop and implement a Behaviour Modification Therapy based on the result of the IGD-20 Test, Thematic Analysis from Literatures and Studies, FGD and the Training Needs Analysis (TNA).

The main problem of this study was on the development and implementation of Behaviour Modification Therapy after the assessment of the Internet Gaming Disorder symptoms of the participants.

The following hypothesis was tested at 0.05 alpha level of significance.

- H1. There is a significant difference between the pre-test and post-test result on the Internet Gaming Disorder (IGD-20 Test) of the experimental group after the implementation of the Behaviour Modification Therapy program.

To answer the main problem, the following five questions were posed in this study. First, what is the pre-test mean score and standard deviation value of the experimental group according to the Internet Gaming Disorder (IGD-20 Test)? Second, what are the components in the development of Behaviour Modification Therapy (BMT) on the Internet Gaming Disorder of the selected students in the public schools through the: a) Predominant themes from Related Literature and Studies; b) FGD; and c) TNA, conducted to the participants? Third, what is the post-test mean score and standard deviation value of the experimental group according to the Internet Gaming Disorder (IGD-20 Test)? Fourth, is there a significant difference between the pre-test and post-test mean result on the Internet Gaming Disorder (IGD-20 Test) of the experimental group? Fifth, what is the extent of the efficacy of the Behaviour Modification Therapy (BMT) in reducing the excessive online gaming of the selected high school students?

The collection of the necessary data based from the questions posited above was anchored to the Cognitive-Behavioural orientation. Grohol (2019) explained that the Cognitive-Behavioural Theory emphasized the cognitions or thoughts a person had. This showed how people developed and how they got a psychological disorder; such was the case of those with IGD. The assessment of Internet Gaming Disorder symptoms through the Internet Gaming Disorder (IGD-20 Test) provided the quantitative data necessary for the numeric configuration of the IGD experiences of the respondents. The qualitative data from the Related Literature and Studies; FGD conducted to the participants; and TNA led to the more comprehensive understanding of what the participants have gone through having IGD. These data gathered and analysed were instrumental in developing the Behaviour Modification Therapy (BMT).

The Cognitive behaviourists generally believed in the role of social learning in childhood and adolescent development, and the ideas of modelling and reinforcement (Grohol, 2019).

Methodology

This study utilized a mixed method of quantitative and qualitative research using sequential explanatory design. The IGD-20 Test was used in collecting the quantitative data while the related literatures and studies, FGD and TNA were used in gathering the qualitative data.

The predominant factors from IGD-20 Test and the consolidated qualitative themes were used in developing the Behaviour Modification Therapy sessions.

Participants

The purposive sampling technique was employed in selecting the participants of this research. The respondents included were the 43 students whose age was from 11-17 years old and from Grade 7 to Grade 12 of public high schools. There were 28 males which was 62.12% and 15 females which was 34.88% of the respondents. 6 or 13.95 % of the participants were 12 years old; 6 or 13.95 % were 13 years old; 6 or 13.95 % were 14 years old; 5 or 11.62 % were 15 years old; 3 or 6.97% were 16 years old; and 10 or 23.25% were 17 years old. There were more participants whose age was 17 years old. This also indicated that the respondents of this study were adolescents.

Instruments of the Study

For Phase 1, the Internet Gaming Disorder (IGD)-20 Test was used in the study to find out the clinical score of the participants.

The Internet gaming disorder test (IGD-20 Test). The IGD-20 Test was the first psychometric tool that became standardized according to the nine Internet Gaming Disorder (IGD) criteria in assessing Internet Gaming Disorder (IGD). The psychometric properties of this research included the validity which are criterion-related validity and concurrent validity; and the reliability which included the internal consistency. The “the criterion-related validity” was assessed by the association between weekly game play and the IGD-20 Test scores ($r(1003) = .77, p < .001$.)” One IGD indicator for excessive online players is when they spend at least 30 hours per week or dedicate their time between 8 to 10 hours or more per day just to be able to play virtually. The “concurrent validity” associated with this was assessed using IGD-20 Test with the nine IGD criteria from the DSM-5 ($r(1003) = .82, p < .001$). There was a strong correlation between the six IGD-20 Test dimensions and the corresponding IGD criteria. For reliability, as measured by the Cronbach's alpha, the “internal consistency” of the IGD-20 Test's was .88 (Pontes et al., 2014). The IGD 20-Test was originally developed by the authors with 1, 003 online gamers as samples from 57 different countries including the Philippines. Those who were diagnosed with IGD were respondents who were 12-20 years old.

The participants shaded the rating scale which was described as strongly disagree (1), disagree (2), either disagree or agree (3), agree (4) and strongly agree (5). The sample IGD-20 Test items were: “I have significantly increased the amount of time I play games over last year; and I tend to get anxious if I cannot play games for any reason.” To obtain the total scores of the participants, the 20 items in the test must be summed up and to compute the scores in specific factors, the average of the items should also be calculated specifically those that represent a particular factor. The IGD-20 Test cut-off score is 71 points. The IGD factors were: Saliency (Factor 1): items: 1, 7, and 13; Mood Modification (Factor 2): items: 2 Reverse (R) scoring, 8, and 14; Tolerance (Factor 3): items: 3, 9, and 15; Withdrawal Symptoms (Factor 4): items: 4,

10, and 16; Conflict (Factor 5): items: 11, 17, 19 Reverse (R) scoring, and 20; and Relapse (Factor 6): items: 6, 12, and 18.

Focus group discussion guide. For Phase 2 – the FGD guide questions were designed to discuss the experiences of the selected high school students. The 7-item guide questions were validated by experts in psychology before it was facilitated. The questions focused on the virtual games they played, factors in playing online games and the help they need in reducing the frequency and intensity of their virtual gaming.

Training needs analysis. The training needs of the participants which were mentioned from the FGD were coded thematically and ranked according to the priority of the respondents.

Literatures and studies thematic analysis. The related literatures and studies about the virtual gaming of the participants were consolidated, analysed and thematically presented after the application of Deductive Analysis Method for the general IGD themes and the Inductive Analysis Method for the specific codes.

Evaluation of behaviour modification therapy sessions. The BMT sessions were evaluated using the researcher-made evaluation form which were validated by experts in psychology. For every session, they checked the column that was appropriate to their assessment depending on the level of how much the BMT helped them. This was rated as follows: 1= It did not help me. 2= It slightly helped me. 3= It moderately helped me. 4= It helped me. 5= It helped me a lot. The Scale for Interpretation were the following: .05-1.4 = no efficacy, 1.5-2.4 = slight efficacy, 2.5-3.4 = moderate efficacy, 3.5-4.4=efficacious; and 4.5-5.0=very efficacious.

Data Gathering Procedures

This research was approved by the University of Santo Thomas Graduate School Ethics Review Committee. In gathering the research data, requests for permission to conduct the study were given to the Superintendent and the Principals of the different public schools of the Department of Education in Bulacan, Philippines.

The participants were selected according to the recommendations of the guidance counsellors, advisers, and subject teachers. The parents of the selected participants were oriented on the procedures of the research and intervention program and their consent were also solicited.

Before the administration of the IGD-20 Test, the participants were oriented about the test. They were encouraged to honestly answer the test and assured of its confidentiality. They were instructed to read each item carefully and double check and count if they have shaded a total of 20 circles before they return test. Then for Phase 1- The IGD-20 Test was administered. During the submission of the finished test the researcher checked the test to see to it that there were no items left unshaded and that the data needed were complete. The IGD-20 Test scores were computed and interpreted. For Phase 2- Those who have the IGD-20 Test clinical mean score of 71 and above were encouraged to join the FGD.

The quantitative and qualitative data were collected and processed which served as the bases in designing the Behaviour Modification Therapy. Then the BMT was facilitated to the participants. For the Phase 3- After the therapy sessions, the post-test on IGD- 20 Test was administered again and during the submission of the finished test, the researcher once again checked the test to see to it that there were no items left unshaded and the data were complete. The participants also evaluated the BMT.

The possibility of Common Method Variance (CMV) arising from the administration of IGD-20 Test was dismissed ex-ante, by implementing preventative measures at the research design stage and data gathering procedures of this study. Some of the ex-ante procedures implemented to reduce the threat of CMV were applied here. Before the administration of the test, the participants were assured of the confidentiality of the data gathered, that it would be protected and aggregated only by the researcher for research purposes, development, and facilitation of the BMT program. They were encouraged to answer the test honestly and reminded them that there would be no incorrect answers. This was to prevent “the respondent’s reluctance to self-disclose and apprehension about being evaluated” (Ardura & Artola, 2020).

The participants were oriented carefully about the IGD-20 Test. Some identified items with word complexity were explained comprehensively. They were instructed to read each item one at a time and double check and count if they have shaded a total of 20 circles before they return test. During the submission of the finished test the researcher checked if there were missing shaded data to be sure of the completeness of the information needed.

Other preventative measures implemented by this study was to have other sources of data. This did not concentrate only to gathering of quantitative data about IGD but also to the collection of qualitative data through Thematic Analysis of Literatures and Studies, facilitation of FGD and doing TNA. This research employed the mixed method of gathering data from the different information sources.

Data Processing

The experiences of the students in terms of IGD-20 Test Symptoms were presented through tables and quantified and analysed using Mean and Standard Deviation. The literatures and studies, FGD and TNA were coded thematically and shown through textual presentation. The difference between the IGD-20 Test pre-test and post-test mean of the experimental group were analysed using the dependent *t*-Test. The evaluation of the BMT was presented in a table and quantified and analysed using the Mean and scale interpretation.

Results and Discussions

Part 1: IGD 20- Test Pre-test Results

This was the pre-test result on Internet Gaming Disorder-20 Test of the participants. This showed the IGD Symptoms, Mean, Interpretation and Standard Deviation. The item number 3 on IGD symptoms had the highest mean of 4.07 which stated as “I have significantly increased the amount of time I play games over last year.” On the other hand, the item number 16 had the lowest mean of 3.42 which stated as “I tend to get anxious if I cannot play games for any reason.” Both items 3 and 16 were interpreted as “Agree” which meant that the participants confirmed their experiences about these IGD symptoms. The standard deviation is 0.78 and the over-all mean of the respondents is 3.78 with the scale interpretation of agree. This indicated that generally, the respondents experienced the IGD symptoms stated in the test.

Zhang et al. (2016) characterized Internet Gaming Disorder (IGD) as a higher level of desire for virtual gaming. The addiction-related cues induced intensification of desire to play online more in the brain areas involved in motivational and reward processing. Rehbein et al. (2015) reported that the excessive virtual gamers complained about lack of sleep and other sleep problems more. They often crave for virtual gaming and when they play, they consume most of their time on virtual activity. Müller et al. (2014) pointed out that by meeting the measures

of craving, withdrawal indications, tolerance and of report of daily use of the Internet and excessive online times can be characterized addicted.

Part 2a: Thematic Analysis on Qualitative Data

Table 1 presented the themes from the analysis of qualitative data. This showed the consolidated themes about IGD from Literatures and Studies from forty (40) authors within a decade, from 2009 to 2019. The data gathered from the related literatures and studies were analysed applying the Deductive Analysis Method for the general IGD themes and the Inductive Analysis Method for the specific codes. The FGD on factors in playing online games, and Training Needs Analysis (TNA) of the participants was thematically coded as well. The participants mentioned two or more factors in playing online games and training needs.

<i>Consolidated Theme</i>	<i>Literatures' Theme (LT)</i>	<i>Factors (F) in Playing Online Games</i>	<i>Training Need Analysis (TNA)</i>
Significant IGD Data	LT6: Brain Effects of Online Gaming (15 authors)	F3: Intensity and Preoccupation in Online Gaming and Tolerance (8 participants)	TN8: Resolution of Thought Issues (3 participants)
	LT2: Excessive Online Gaming and Tolerance (10)		TN1: Reduction of Intensity in Online Gaming (26)
Tolerance in Excessive online Gaming	LT6: Missing Sleep (1)		TN4: Sleep Regulation (13)
Mood Modification through Escapism	LT2: Excessive Online Gaming And Tolerance (10)	F1: Mood Alteration (26) F7: Escape (7)	TN3: Handling Emotions (16) TN9: Learning Life Lessons (2)
Negative Emotional Impact of IGD Withdrawal	LT3: Escapism and Virtual Self Identity (9)	F6: Difficulty to Stop Online Gaming (5)	
Recurrence of Excessive online Gaming	LT5: Withdrawal and Aggression (8)	F7: Failure to Stop Online Gaming (4)	TN1: Reduction of Intensity in Online Gaming (26)
Relational Dissonance	LT7: Relapse in Playing Online Games (4)	F4: Gaming Activity with Peers (7)	TN2: Conflict Resolution and Management of Responsibilities (23)
		F6: Alternative Solution (3) F8: Financial Gain (1)	TN7: Proper Allowance Allocation (3)
Health Issues	LT3: Problems and Conflicts in Social Relationships (10)		TN5: Giving Importance to Meals (11) TN6: Reduction of Physical Consequences (4)

Table 1: Consolidated Qualitative Themes

This table showed the consolidated themes on the significant Internet gaming data; tolerance in excessive online gaming; mood modification through escapism; negative emotional impact of IGD withdrawal; recurrence of excessive online gaming; and the relational dissonance. The other related theme was on health issues. This also presented the seven (7) themes analysed from the different authors of literatures and studies; eight (8) factors from FGD on playing online games; and nine (9) training needs of the participants which were ranked in descending order.

This manifested that when the respondents experience boredom and overwhelming problems, they used a mood modification strategy and virtual escape through online gaming which

became excessive and turned out to become an addiction. The participants spent a lot of time in playing online games, missed their sleep and skipped their meals. When they tried to lessen the frequency and intensity of their gaming, they experienced the negative emotional impacts of withdrawal and so they continued to play online games until such a time that they cannot control themselves anymore and suffer the physical and psychological effects of IGD. Their excessive virtual gaming affected their family and social aspects, and especially their academic performance in the school.

Wang et al. (2017) explained that IGD showed deficits in making decisions and tends to search immediate gratification. The essential method came from the deficient capacity in evaluating between delayed incentive, immediate fulfilment, and the impaired ability in urge inhibition. This was considered related to the dysfunction of the prefrontal stimulation. As a result, respondents with IGD were unstoppable in playing online games even though they have faced the severe undesirable consequences of their excessive gaming behaviour. Therefore, the behaviour modification strategies were needed to assist the participants in their training needs.

Part 2b: The Behaviour Modification Therapy Sessions

Table 2 presented the Behaviour Modification Therapy sessions facilitated to the selected high school participants. The specific time frame for the first (1st) and eighth (8th) sessions was 90 minutes, and the second (2nd) up to seventh (7th) sessions was 60 minutes.

<i>Behaviour Modification Therapy</i>		
<i>Session</i>	<i>Theme/Activity</i>	<i>Objectives</i>
1	Getting to Know Activity and Orientation on the Behaviour Modification Therapy	Welcome the participants and facilitate a getting to know activity. Orient them on the coming sessions that will be facilitated. Ask them to also write their own expectation from the therapy. Explain the importance of joining in therapy sessions.
2	Psychological Effects of IGD; Irrational and Rational Thoughts; and Maintaining Mental Hygiene	Discuss with them the result of the IGD 20 Test. Let them assess the effects of online gaming on their thoughts. Explain on the importance of rational, optimistic thoughts in maintaining mental hygiene. Let the participants talk about their good thoughts.
3	Emotional Effects of IGD and Positive Emotion and You	Enlighten the participants on the emotional effects of IGD. Let them describe their experience of having positive emotion. Elaborate on the influence of positive emotion to one's life. Let them draw a symbol of positive emotions that they want.
4	Behavioural Effects of IGD and Behaviour Modification on IGD (Part 1)	Let them identify their learned attitudes from playing online games. Expound on the effects of IGD on one's behaviour. Let them list the times during the day when they play online games. Let them write the ways to lessen their online gaming.
5	Modification on IGD (Part 2) and Reducing Computer Gaming Through Productive Activities	Explain the behaviour modification in application to IGD. Let them rank the gaming schedule they can give up. Let them choose activities in exchange of online gaming. Let them plan a weekly schedule to manage their time and their activities that can help in regulating their virtual gaming.
6	Skipping Meals and the Right Eating Habits; and Missing Sleep with IGD and Importance of Sleep	Tackle about the effects of skipping meals while online games. Talk about the food and its importance. Analyse with them the effects of missing sleep. Let them plan a sleep schedule and list ways to have a good sleep.
7	Psychosocial Effect of IGD and Mending Relationships	Emphasize on the psychosocial effects of IGD on one's relationship. Illuminate on the value of mending relationships as essential aspect towards their recovery from IGD. Let them role play social ways that can improve their relationships.
8	Youth Productive Lifestyle; Closure and Evaluation	Expound on the worth of one's time and youth productive lifestyle. Remind them on self-management to prevent the recurrence of IGD. Let them write and share their plan for the future. Explain the session closure and let them evaluate the therapy sessions.

Table 2: The Behaviour Modification Therapy

This showed the eight (8) Behaviour Modification Therapy sessions facilitated to the participants with the themes, activities, and objectives. The 1st session was on Getting to Know Activity and Orientation on the Behavior Modification Therapy. The 2nd session was on Psychological Effects of IGD; Irrational and Rational Thoughts and Maintaining Mental Hygiene. The 3rd session was Emotional Effects of IGD and Positive Emotion. The 4th session was on Behavioral Effects of IGD and Behavior Modification on IGD (Part 1). The 5th session was on Modification on IGD (Part 2); and Reduction of Computer Gaming through Productive Activities. The 6th session was on Skipping Meals with IGD and the Right Eating Habits; and Missing Sleep with IGD and Importance of Sleep. The 7th session was on Psychosocial Effect of IGD and Mending Relationships; and the 8th session was on Youth Productive Lifestyle; Session Closure and Evaluation.

The proposed eight (8) sessions of Behavior Modification Intervention was anchored from Meichenbaum's Cognitive Behavior Therapy (CBT). The focus of this intervention was to change the irrational thoughts of the participants by starting a new internal dialogue, produce a desired affect and learn new skills to have a well-adjusted behavior. It was time-limited, present-centered, and an educational intervention program targeted on particular problems to be solved (Corey, 2013).

Part 3: IGD- 20 Test Post-test Results

This presented the post-test result on Internet Gaming Disorder-20 Test of the participants. This also showed the IGD Symptoms, Mean, Interpretation and Standard Deviation after the facilitation of Behaviour Modification Therapy sessions. This demonstrated that the item number 11 on IGD symptoms had the highest mean of 2.49 which stated as "I have lied to my family members because the amount of gaming I do." On the other hand, the item number 1 had the lowest mean of 2.05 which stated as "I often lose sleep because of long gaming sessions." Both items 11 and 1 were interpreted as "Disagree". The standard deviation was 0.96 and the over-all mean of the respondents was 2.32 with the scale interpretation of disagree. This meant that the respondents disagreed on the IGD symptoms stated in the test. This has proven the reduction in IGD symptoms.

Kuss and Lopez-Fernandez (2016) stated that to treat Internet addiction especially online gaming the most common applied psychological therapy was CBT. It facilitated a behaviour modification technique in reducing the time spent in online gaming and promoted good activities that enhance the well-being of individuals with IGD. The reduction of excessive online gaming was achieved, and the helpful activities were introduced that led to the improvement on the school performance of those with IGD. These strategies were proven effective in treating IGD.

Part 4: *t*- Test on the IGD-20 Test Pre-test and Post-test

This presented the *t*- test on the IGD-20 Test pre-test and post-test. This showed the over-all mean of the respondents' pre-test and post-test, standard deviation, degree of freedom, alpha level of significance, critical *t* and the *t*-Test result, interpretation and decision.

The over-all mean of the respondents' pre-test was 3.78 with the scale interpretation of disagree; the over-all mean of the post-test was 2.32 with the scale interpretation of disagree; and the standard deviation was 0.75. Meanwhile, the degree of freedom was 42; the alpha level of significance was 0.05; the Critical *t* was 2.021; and the *t*-Test was 3.165. This manifested that there was a significant difference in the result of the IGD- 20 Test pre-test and post-test.

The hypothesis that there is a significant difference between the pre-test and post-test result on the Internet Gaming Disorder (IGD-20 Test) of the experimental group after the implementation of the Behaviour Modification Therapy program was supported by the result.

Vasiliu and Vasile (2017) used CBT for cognitive restructuring and coping skills-focused approach. They found out that CBT paradigm was effective in treating behavioural addiction especially in the case of excessive online gaming.

Lindenberg, et al. (2017) mentioned that the first priority in both educational policies and public health was on the reduction on the rate of prevalence of the excessive Internet use especially in online gaming; and the identification of the treatment that will be effective in reducing this phenomenon, training emotion regulation skills, and problem solving. This therapy program benefitted more on the male participants since the treatment seekers were more on males (Müller et al., 2014) and they were those who had more IGD negative impacts than on female population (Chen, 2018).

Part 5: The Extent of the Efficacy of the Behavior Modification Therapy

This presented the evaluation on the sessions done after the facilitation of behaviour modification therapy. This included the topics and activities, mean, scale description and interpretation. The Session 5 with the topic: Modification on IGD (Part 2) Reducing Computer Gaming through Productive Alternative Activities had the highest mean of 4.44, with a scale description of “It helped me.” which was interpreted as efficacious.

The overall mean was 4.28 with a scale description of “It helped me.” which was interpreted as efficacious. This showed that the number one training need of the respondents which was provided by the Behaviour Modification Therapy (BMT) was successfully facilitated. The mean of the other seven (7) sessions were also interpreted as efficacious.

Woog (2016) recommended the treatment intervention focusing on behavioural management method which involved the gradual decrease in time spent in virtual gaming. The reinforcing activities could be their school activities, skills development, and bonding with family members and friends.

The facilitation of (BMT) techniques promoted productive activities; improvement on the school performance; harmonious relationship with the family and the community; and enhancement of the well-being of the participants. For possible experience of relapse in excessive online gaming, the participants were encouraged to communicate to the school guidance personnel. Then they could request for follow-up intervention from the facilitator.

Conclusion

The main purpose of this research was to develop and implement a Behaviour Modification Therapy (BMT) program that would reduce the frequency, intensity, duration of the excessive online gaming of the adolescent participants. The BMT addressed a part of the increasing number of adolescents afflicted by Internet Gaming Disorder which was a great concern of the Philippine society. The Filipino youth needed assistance to help them change their excessive online gaming which was provided for them through the BMT program.

The participants in this study were adolescent high school students and their pre-test on the Internet Gaming Disorder (IGD-20 Test) showed that they experienced the IGD symptoms stated in the test. At this stage, they were at the period of experiencing mood disruptions and engaging in risky behaviour. Their persistent and recurrent use of Internet to engage in games alone or with other players led to their clinical impairment or distress (American Psychiatric Association, 2013). Their curiosity about online gaming turned out to become an Internet Gaming Disorder, a behavioural addiction.

The components in the development of Behaviour Modification Therapy (BMT) for the selected students were based on the factors of the IGD-20 Test pre-test and the predominant themes from related literatures and studies; Focus Group Discussions; and Training Need Analysis. The predominant themes from the related literatures and studies was on the brain effects of online gaming; and from FGD were the types of games the respondents play, factors why the respondents play online games, and the training they need to change their excessive online gaming behaviour. The greatest factor why the respondents excessively played online games was on Mood Alteration, they used this activity to modify their mood or change their feelings as they had gone virtual. This was the reason why their highest priority in receiving intervention was on the Reduction of Frequency and Intensity in Online Gaming.

After the facilitation of the BMT, the post-test administered on the Internet Gaming Disorder (IGD-20 Test) showed that the experimental group respondents disagreed on the IGD symptoms. The BMT program made a significant difference in reducing the symptoms of Internet Gaming Disorder (IGD) of the participants.

The limitations of this study were on the selection of the respondents and on the use of the IGD-20 Test. This research focused only on the adolescent public high school participants and used only the mean of the symptoms of the IGD-20 Test in finding the difference.

The future researchers may conduct the same research with students from the private high school. The IGD experiences of the respondents from the private high school was predicted to be similar to the excessive online gaming activities of those students in the public high school. They could also find the difference of IGD-20 Test factors.

The protocols followed by this study in creating and implementing the BMT program can serve as a model in developing a therapy for the respondents with IGD. The BMT can be adapted as group psychotherapy for IGD. The future researchers could facilitate the Behaviour Modification Therapy to test its effectiveness.

This research had proven the efficacy of Behaviour Modification Therapy (BMT) that made a significant difference in reducing the symptoms of Internet Gaming Disorder (IGD) of the selected Filipino high school students.

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