

Efficacy of Acceptance and Cognitive Restructuring Intervention Program (ACRIP) on the Symptoms of Internet Gaming Disorder and Psychological Well-Being of Adolescents

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Abstract

This study examined the efficacy of the Acceptance and Cognitive Restructuring Intervention Program (ACRIP) in reducing the symptoms of Internet Gaming Disorder (IGD) and improving the psychological well-being of adolescents. The ACRIP is an eight-module intervention program carried out over a four-week period. Its efficacy was tested using “randomized controlled trial” of two groups consisting of 40 adolescents. Twenty adolescents were each assigned for experimental study and under a controlled environment. Internet Gaming Disorder and Ryff’s Psychological well-being scales were used to measure the severity of the gaming disorder and the present state of one’s psychological health respectively. Paired t-test and MANOVA were used for data analyses and Cohen’s d test measured the extent of the effect of the program. Results of paired t-test and MANOVA showed statistically significant effects and thus suggest that ACRIP is an efficacious remedy in reducing and relieving the symptoms of IGD and enhancing the psychological well-being of adolescents.

Keywords: internet gaming disorder, compulsive internet gaming, psychological well-being, mental health, cognitive restructuring

Introduction

The emergence of Internet Gaming Disorder (IGD) or gaming disorder as a growing social issue and a significant health concern-affecting adolescent in increasing number of countries (World Health Organization, 2015) needs the development of an effective intervention program. The reduction in the dysfunction brought about by IGD, the need to uplift the poor psychological well-being of adolescents and its effective treatment are at a high priority when such a disorder becomes a public health concern and an effective treatment program has yet to be established.

“Gaming disorder”, the official nomenclature given by the World Health Organization (WHO) to compulsive online or offline gaming, was recently recognized as a mental health condition. It is included in the WHO’s 11th International Classification of Diseases (ICD-11) released mid-2018 and characterized as “a pattern of persistent or recurrent gaming behavior (“digital-gaming” or “video-gaming”), which maybe online (i.e., over the internet) or offline, manifested by: (a) impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context); (b) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and (c) continuation or escalation of gaming despite the occurrence of negative consequences. These manifestations whether continuous, episodic or recurrent, must be present at least in the last 12 months to be significant for diagnosis. If severe symptoms and all diagnostic criteria are present, the length of time may be shorter. The ICD is used by medical practitioners around the world to diagnose conditions and by researchers to categorize conditions (World Health Organization, 2018a).

Since the proliferation of internet in 2000s and the prevalence in internet gaming among the adolescents, empirical evidences began to surface associating compulsive internet gaming with poor psychological well-being (Gentile et al., 2010; Kuss & Griffiths, 2012). In 2013, the American Psychiatric Association (APA) recognized excessive online gaming due to its potential to becoming a public health threat and referred to it as Internet Gaming Disorder (IGD). To aid clinicians, it defined the nine preliminary diagnostic criteria in the Diagnostic and Statistical Manual 5th edition (DSM-5), last updated in 2013, as: (a) pre-occupation with internet games, (b) withdrawal symptoms, (c) tolerance or the need to spend increasing amounts of gaming time, (d) unsuccessful attempts to control participation in internet games, (e) loss of interest in previous hobbies and entertainment, (f) continued excessive use of internet games despite knowledge of psychosocial problems, (g) deceived family members, therapists or others on the amount of time spent gaming (h) used internet games to escape, and (i) harmed or lost a significant relationship, job, or educational or career opportunity. Five of these nine criteria must be present over a 12-month period for diagnosis and should lead to a significant impairment and clinical distress (APA, 2013). IGD is, however, included in the research appendix (section III) of DSM-5 as a condition requiring further study to be considered a clinical disorder in the *Diagnostic Criteria and Codes* section (APA, 2013). As this study pertains to compulsive or excessive and uncontrollable internet or online gaming, we adopted the term IGD as used by APA and widely used in the existing literature.

Over the years, empirical studies on IGD were consistent in showing the serious implication of the disorder to psychological well-being (Gonzales-Bueso et al., 2018; Kuss & Griffiths, 2012; Stavropoulos, Kuss, Griffiths, Wilson, & Motti-Stefanidi, 2017; Subramaniam et al., 2016). Similar to substance use disorder and general problematic internet use (PIU), IGD is significantly associated with self-harming behaviors and other negative consequences as adolescents become uncontrollably pre-occupied with gaming (Kuss & Griffiths, 2012).

Psychological consequences include sacrificing sleep, other pastime activities, socializing and relationships (Stavropoulos et al., 2017); jeopardizing academic work and employment; and enduring related health problems like eyestrain, carpal tunnel syndrome, back strain and repetitive stress injury in some cases. For instance, in India, online gaming is taking a toll among its gamers as they commit suicide in various ways such as jumping off a building or harming oneself to death. In response, the Indian government took action on the deadly game, Blue Whale Challenge, and recently directed internet majors – Google, Facebook, WhatsApp, Instagram, Microsoft and Yahoo – to erase its links (Blue Whale Challenge, 2017). The impairment experienced by adolescents with IGD extends to all aspects of life as it results in failed or poor academic performance, functional impairment, health issues, emotional imbalance, and mental problems. The impact of IGD to psychological well-being is seriously destructive as it may cause deep depression and resort an individual to threaten his own life. With the many and possible negative consequences of IGD which allow its behavior to be classified as pathological based on established clinical standard as per APA (2000), IGD may require professional treatment (Kuss & Griffiths, 2012; Kuss, Griffiths, & Pontes, 2017).

Based on several studies, adolescents have the greater chance of developing internet addiction (APA, 2013; Tsitsika et al, 2011) and are more vulnerable to addiction although internet addiction can occur at any age and in any social condition (Pallanti, Bernardi & Quercioli, 2006). Cognitive and psychological developments happen during adolescence. At this stage, the adolescents' reasoning skills, logical including abstract thinking, ability to make rational judgments and moral thinking significantly develops. However, these developments can be affected by the internal changes within the adolescent and his environment (WHO, 2018b). Rehbein and Baier (2013) found that the risk factors of IGD in 15-year old adolescents would have started coming out at age 10. At the stage where well-being is significantly formed are neuronal developments in the regions of one's brains such as the limbic system that are responsible for pleasure seeking and reward processing, sleep regulation and emotional responses. Changes in organization, decision-making, impulse control and planning occur in the pre-frontal cortex, which is responsible for executive functions. All these changes at the developmental stage are influenced by one's self and environment (WHO, 2018b). Adolescence is regarded as the stage where young people seek purpose and meaning in their life. Low psychological well-being at this time may lead to dissatisfaction, difficulties and poor functioning in life areas such as career, interpersonal relationships, social life and increased risk of suicide (Lemmens, Valkenburg & Peter, 2011).

There has yet to be an established efficacious intervention program that will prevent and treat IGD (WHO, 2015). Per existing literature, there also is the need for systematic reviews on interventions and/or treatments for IGD. There was little evaluation about the efficacy of various psychological interventions applied on adolescents (King, Haagsma, Delfabbro, Gradisar, & Griffiths, 2013; King & Delfabbro, 2014). According to King and Delfabbro (2014), the application of Cognitive therapy as treatment for IGD in 36 studies seemed to lack cognition-based measures. Further, existing literature suggested examining the efficacy of Cognitive Behavioral Therapy (CBT) for randomized-controlled studies (Hofmann et al., 2012).

The serious and alarming impact of IGD on the psychological well-being of adolescents heightens the need and proposes to develop an efficacious intervention program for this current and emerging disorder. On this premise, the intervention program Acceptance and Cognitive Restructuring Intervention Program (ACRIP) was developed with the purpose of reducing the

adolescent's risk level of IGD and improving one's psychological well-being. Hence, specifically, the hypotheses examined in this study were:

- H.1. Negative cognition influences psychological well-being,
- H.2. IGD predicts poor psychological well-being, and
- H.3. ACRIP as an intervention program is efficacious in reducing the IGD risk level and improving the psychological well-being of adolescents, and has a lasting benefit.

The ACRIP, an eight-module intervention program that was organized for completion within four weeks (three hours per module, twice a week) was then subjected to an experimental study to test the modules' efficacy.

Process of Program Development

A study of existing related literature and current scenario were performed to assess the relevance, impact and potential of the issue at hand. After a correlation was established between IGD and psychological well-being and careful examination of its constructs, the intervention program ACRIP was developed by integrating the concepts of two cognitive theoretical models: Cognitive Behavioral model of Problematic Internet Use (PIU) and Mindfulness. The intervention aimed at reducing the symptoms of IGD experienced by the adolescents and improving their psychological well-being in order that they will function productively at home, in school and other areas of their life so as not to become a burden to society.

The Cognitive Behavioral model of PIU suggests that pathologic internet use results from "problematic cognitions coupled with behaviors that either intensify or maintain the maladaptive response" (Davis, 2001 p.191). It proposes that maladaptive cognitions about the self and world are proximal sufficient causes of symptoms of IGD. Cognitive distortion intensifies an individual's dependence to internet gaming (Davis, 2001). Experts to guide an individual to self-question, self-talk and to instill positivity in them then apply cognitive Behavioral Therapy (CBT). The ACRIP program focused on self-awareness, self-acceptance, identifying cognitive distortions and its root cause, and determining the CBT technique most suitable to counter the effect of and modify these unhealthy thinking patterns leading to cognitive restructuring.

The cognitive theory of Mindfulness by Ellen Langer states that mindfulness is "a flexible state of mind in which we are actively engaged in the present, noticing new things and sensitive to context" (Langer, 2000 p.220). Moreso, mindfulness is both a state and a trait wherein the state is the behavior in a particular situation while the trait can incline a person to think and behave mindfully (Langer, 2000). It promotes sensitivity to the environment and supports clearer thoughts and behaviors as it teaches individuals to become observant of and experience their thoughts and feelings. Having the trait to be mindful can spawn new outlook and encourage making upright decisions. The basic framework of the theory is that with appropriate interventions, mindlessness can be overcome (Langer, 2000). A person can then change behavior aligned to ones' thinking. In this way, it can be said that negative cognitions can be overcome through cognitive restructuring.

A pilot study was undertaken, and the results were good indicators to conduct an experimental study. The mean scores and standard deviation values using the IGD and PWB scales, pre-test vs. post-test, showed decrease in the adolescents' IGD level (from $M = 41.50$, $SD = 2.17$ to $M = 20.80$, $SD = 2.15$) and increase in PWB level (from $M = 125.90$, $SD = 11.60$ to $M = 420.30$, SD

=22.48) implying a reduction in IGD symptoms and improved psychological well-being after the feasibility study. For statistical analysis, the “Wilcoxon signed rank test” was used to assess the pre and posttest scores of the adolescents. The result showed that there is a significant difference in the pre-test and post-test scores of both IGD ($Z = -2.809, p = .005$) and PWB ($Z = -2.803, p = .005$).

Further, the participants’ feedback during the pilot test period were obtained to improve ACRIP prior this experimental study was performed. The participants positively acknowledged, expressed fulfillment and appreciated the program. Generally, they reported having less withdrawal symptoms on internet gaming, improved level of concentration, interacted with others more, felt contented and were excited for future life plans. The ACRIP was subjected to content validation by 11 mental health experts other than those involved in the focus group discussions and was tested for inter-rater reliability. The experts used the standard evaluation guidelines, which was an adapted form of the tool, developed and used by United States Agency for International Development (USAID). After thorough evaluation, the experts graded the program with an overall score of “A” unanimously affirming the soundness, relevance and feasibility of the ACRIP. On the inter-rater reliability test of ratings given by the experts, the ACRIP was found be consistent and reliable. The inter-rater reliability resulted to co-efficient of .78. The result of the experts’ validation gave the assurance that the program is reliable and predicts high chances of being efficacious in bringing about affirmative changes. Expert comments and recommendations on technical and conceptual aspects were considered in building the program structure prior to start of the experimental validation. The experts suggested reducing the time spent per module from three and a half hours to three hours to hold the attention of the participants enough to keep the momentum and for them not to become weary due to over activity. The result of the study confirmed that the modules developed for the intervention program are reliable, feasible, and efficacious for testing on a larger base of adolescents who are at risk of IGD. The eight modules developed for the ACRIP, summarized as AFFIRMED, and the objective of each module are briefly described in Table 1.

MODULE	OBJECTIVES
Module 1 Introductory session: Accustomizing with Each Other	Present ACRIP and Ignite Rapport (PAIR) Introduce ACRIP to participants; build rapport among and with participants; explore expectations; set ground rules; promote vigor, knowledge, enthusiasm and among participants so they can fully participate in the therapeutic process; educate participants about IGD and their potential to live a quality life; and teach them the benefits of practicing mindfulness regularly to improve their psychological well-being.
Module 2 Freeing oneself from dysfunctional	Drop Resentments, Anger, Ill-Feeling Thoughts and Negativity (DRAIN) Starting with oneself, identify the dysfunctional thought patterns; educate participants about how thought affects mood, negative automatic thoughts, thought distortions and cognitive restructuring; how to challenge is automatic

MODULE	OBJECTIVES
<p>Module 3 Forging Oneself to Divert into Realistic and Optimistic Patterns to Create Positive Vibes (DROP)</p>	<p>negative thoughts; to enable participants to re-animate their harmful negative thoughts into positive conservative thoughts; to help them reduce self-distorted thinking, loneliness, sadness, anxiety and hopelessness; how to boost self-confidence, positive self-concept, self-acceptance and self-esteem; and to adhere consistently to a set plan of action.</p> <p>To help participants recognize their negative thoughts and emotions and ventilate these from their consciousness; accept their distorted thinking with realistic reconstructive activities; enhance their motivation to be more active and dynamic in day-to-day life; teach them to distract the dysfunctional thoughts; encourage them to become more involved various activities; improve their self-esteem and self-efficacy; and instruct them on various strategies to create positive vibes.</p>
<p>Module 4 Igniting and Re-Building</p>	<p>Communicate, Reconnect, Encourage, Animate, Friendships and Relationships Talk and Engage (CREATE)</p> <p>To orient and make the participants understand the different factors of good communication; identify positive mutual feelings between self and others; to comprehend different problem-solving techniques; to reconnect with lost relationships; to encourage their family and friends to provide more support to the participants; and re-animate the self- talk.</p>
<p>Module 5 Re-kindling Self-Love</p>	<p>Approval, Care and Concern to Enhance and approval Positive Thinking (ACCEPT)</p> <p>To encourage self-love, self-respect and self-acceptance among the participants and for them to have a better mental picture of themselves; to accept their good and bad qualities; to notice and acknowledge their positive aspects; to understand that well-being is determined by a person’s level of self-acceptance and that it affects all aspects of their life.</p>

MODULE	OBJECTIVES
Module 6 Magnifying Self-Worth	Show Toughness, Autonomy and Nobility in Independence Decision Making (STAND) To improve a consistent and positive self-image among participants; to elevate their self-worth and image; to instruct them on how to make decisions without relying on others; and to evaluate their personal standards.
Module 7 Enabling Control of Oneself Over the External World	Control over Personality and the Environment (COPE) To process participants' thoughts, feelings and body sensations; to manage every day affairs and improve surrounding context; to be aware of surrounding opportunities and develop a sense of control over the external world; to enable the participants to identify positive coping skills and find specific activities that improve environmental mastery.
Module 8 Developing a Friendly Atmosphere Where Creativity is Enhanced	CHANGE (Cloistered in Hope and Acceptance, Nurtured and Goal- Enriched) To help the participants to feel better about themselves; to make the participants feel that they are accepted and loved by their family and friends; to improve their creativity as a groundwork for their future living; to help them take the initiative to work and accept future responsibilities; and prepare the participants for termination.

Table 1. ACRIP Modules and Objectives

Methods

Design and Participants

A true experimental research method between two independent groups as subjects was adapted to determine the efficacy of the intervention program developed by the researcher. A prior approval was obtained from the Manila Med Ethics Review Committee to support observance of ethical standards during the conduct of this study.

Forty adolescents ($N=40$, $M=14.00$, $SD=1.34$) were chosen from those who met the inclusion criteria. Twenty adolescents were randomly assigned to each of the experimental and control groups. The participants were selected on the basis of the following inclusion criteria: (1) adolescent boys and girls, (2) 12 to 18 years old, (3) currently enrolled in schools (4) staying/living with biological parents/guardians and (5) engages actively in playing any of the available internet games.

Of the 40 participants, there were more males than females; males comprise 70% ($N=28$) while females were 30% ($N=12$). There were also more adolescents captured in the 16-18 age range ($N=24$) than in the 12-15 age bracket ($N=16$). Participants' gaming profile showed 80% were

playing more than 30 hours per week. Broken down: 40 hours and up ($N = 24$, 60%), 30-39 hours ($N = 8$, 20%), and below 30 hours ($N = 8$, 20%).

Informed consent was obtained from the participants and their parents and guardians. The study was carried out in consideration of confidentiality and ethical issues.

Measures

Personal Data Sheet/Demographic Information Form (DIF). The study perused a researcher-made personal data sheet/DIF to obtain the following socio-demographic and gaming profile of the respondents: age, gender, number of hours of internet gaming per week, length of gaming per session, frequently played game title and genre, years of experience internet gaming and family relations. The informed consent also forms part of the personal data sheet/demographic questionnaire.

Internet Gaming Disorder (IGD) Scale. The IGDS9-SF (Pontes & Griffiths, 2015) assesses IGD's severity and its detrimental effects by examining both online and/or offline gaming activities occurring over a 12-month period. The IGD questionnaire consisting of nine questions represents the nine criteria of IGD as defined by DSM-5, that is, *Do you feel preoccupied with your gaming behavior?*, *Do you feel more irritability, anxiety or even sadness when you try to either reduce or stop your gaming activity?*, *Do you feel the need to spend increasing amount of time engaged in gaming?*, *Have you lost interests in previous hobbies and other entertainment activities as a result of engagement with the game?* They are answered on a 5-point Likert scale ranging from 1 (never) to 5 (very often). The IGDS9-SF had excellent reliability with an internal consistency coefficient (Cronbach's α) of .96 and is comparable with the coefficients reported in studies (Fuster, Carbonell, Pontes, & Griffiths 2016; Pontes & Griffiths, 2016; Pontes & Griffiths, 2015). Total scores are obtained by adding up all responses given to all nine items of the IGDS9-SF and can range from a minimum of 9 to a maximum of 45 points, with higher scores indicating higher degree of IGD. Gamers are distinguished from non-gamers as having satisfied at least five of the nine criteria where each is answered as "5: Very Often", which translates as endorsement of the criterion.

Ryff's Psychological Well-being (PWB) Scale. Ryff's Psychological well-being scale consists of 84 items dealing with how an individual feels about himself and his life. This self-report scale was designed to assess an individual's well-being at a particular moment in time within each of these six dimensions: (a) autonomy (e.g. "Sometimes I change the way I act or think to be more like those around me"), (b) environmental mastery (e.g. "Most people see me as loving and affectionate"), (c) personal growth (e.g. "I am not interested in activities that will expand my horizon"), (d) positive relations with others (e.g. "When I look at the story of my life, I am pleased with how things have turned out"), (e) purpose in life (e.g. "Maintaining close relationships has been difficult and frustrating for me") and (f) self-acceptance (e.g. "In general, I feel that I continue to learn more about myself as time goes by"). Three-to-12- items per dimension-validated versions exist of the measure for use in survey research or other data collection. Individuals respond to various statements by indicating on a 6-point Likert scale (1-strongly disagree, 2-moderately disagree, 3-slightly disagree, 4-slightly agree, 5-moderately agree, 6-strongly agree) how true each statement is for them. A participant's reply to negatively scored items (-) are reversed in the final scoring procedures so that high scores indicate high self-ratings on the dimension measured. Higher scores on each of the dimension indicate greater well-being on that dimension. Each of the dimensions have the following reliability coefficient according to Ryff & Keyes (1995): autonomy ($\alpha = .83$), environmental mastery (α

= .86), personal growth ($\alpha = .85$), positive relations with others ($\alpha = .88$), purpose in life ($\alpha = .88$), and self-acceptance ($\alpha = .91$).

Procedures

The data for this study were gathered from pre-experimental, experimental and post-experimental phase. During the pre-experimental phase, the researcher conducted an information drive about internet gaming disorder and the importance of an intervention program in different secondary schools in India. Using the purposive sampling technique, adolescents were selected from among the students who satisfied the set inclusion criteria. Thereafter, they were informed and assured of the confidentiality of information involved in this study, asked to sign an informed consent including their parents/legal guardians and fill-out the IGD and PWB scales. Interviews and focus group discussions were conducted to obtain valuable information for this research and a pilot study was carried out prior the experimental phase. The participants selected for the experimental phase were designated into experimental and control groups and were introduced to the proceedings of the intervention program ACRIP prior to its execution. The control group did not receive the intervention program ACRIP. The program was completed in four weeks and the program was similarly administered to the control group after the post-test for ethical considerations. In the post-experimental phase, the scores before and after the intervention were subjected to statistical analyses for evaluation. The participants in experimental group completed the post-test two days after the completion of the intervention program.

Results

The study resulted in a remarkable change in the participants' behavior as indicated by the post-test scores during statistical analyses. The low score in IGD and high score in PWB measures among the adolescents in the experimental group only shows that some symptoms of the disorder have been eradicated or reduced which validates that the level of IGD has been reduced and their psychological wellbeing has improved. During pre-test, it was noted that, on IGD measure, mean scores of both the experimental and control groups are high and almost similar (Exp: $M = 38.50$, $SD = 1.40$ and Ctrl: $M = 38.45$, $SD = 5.02$). Pre-test mean scores of both groups on PWB measure also reflected to be at almost the same low level (Exp: $M = 126.10$, $SD = 18.96$ and Ctrl: $M = 124.60$, $SD = 51.68$). Remarkably, for the experimental group, outcome of the post-test on mean scores and standard deviation values showed relevant decrease in IGD (Exp: $M = 17.25$, $SD = .79$) and increase in PWB (Exp: $M = 406.50$, $SD = 19.22$) levels. Post-test mean scores and standard deviation values for the control group during post-test, for both IGD and PWB measures remained more or less on the same level (IGD- Ctrl: $M = 38.05$, $SD = 3.97$) and PWB-Ctrl: $M = 122.90$, $SD = 48.42$) as it is during pre-test.

Overall result of MANOVA test on the difference in the mean scores and standard deviation values of the experimental and control groups during post-test shows significant differences ($F(7, 32) = 3626.206$, $p = .001$). It clearly connotes that the researcher-developed intervention program, ACRIP, which aims to alleviate the symptoms of IGD and to enhance the psychological well-being of the adolescents is statistically significant at p -value .001.

Table 2 presents the effect of ACRIP using variance analyses in MANOVA between subjects. Results point out that the significant difference on post-test scores of the experimental and control groups is the effect of the intervention program connoting that the ACRIP is

efficacious in reducing the symptoms of IGD ($p = .001$; $F = 529.14$) and improving the psychological well-being ($p = .001$; $F = 592.69$) of adolescents.

Variables	Experimental		Control		F-value	p-value
	Mean	SD	Mean	SD		
IGD	17.25	.79	38.05	3.97	529.14	.001
PWB	406.50	19.22	122.90	48.42	592.69	.001
PR	69.85	3.90	20.85	8.46	553.26	.001
AU	67.35	3.07	20.00	8.50	549.46	.001
EM	66.90	3.08	20.20	8.43	541.31	.001
PG	62.70	3.88	19.95	7.24	542.07	.001
PL	69.95	4.71	21.15	8.13	539.46	.001
SA	69.75	4.10	20.75	8.24	566.87	.001

Legend: SD- standard deviation, IGD- Internet Gaming Disorder; PWB- Psychological wellbeing; PR - Positive Relations; AU - Autonomy; EM - Environmental Mastery; PG - Personal Growth; PL - Purpose in Life; SA - Self-Acceptance

Table 2. MANOVA results from the Post-test scores of the Experimental and Control Groups in terms of IGD and PWB (between subject effects)

Table 3 shows the outcome of paired t-test in comparing the pre-test and post-test scores of the experimental group, in terms of IGD and PWB. Tested at $<.05$ level of significance, the result shows there is a significant difference (p -value $= .001$) between the pre and post-test scores. Post-test results affirm the positive effect and impact of the ACRIP as a treatment program.

Variables	Pre-test		Post-test		F-value	p-value
	Mean	SD	Mean	SD		
IGD	38.50	1.40	17.25	.79	51.88	.001
PWB	126.10	18.96	406.50	19.22	-47.03	.001
PR	21.70	4.93	69.85	3.90	-40.15	.001
AU	18.85	3.33	67.35	3.07	-49.08	.001
EM	23.60	4.24	66.90	3.08	-40.98	.001
PG	20.05	3.03	62.70	3.88	-35.12	.001
PL	22.00	3.40	69.95	4.71	-36.19	.001
SA	19.90	2.83	69.75	4.10	-40.97	.001

Legend: SD- standard deviation, IGD- Internet Gaming Disorder; PWB- Psychological wellbeing; PR - Positive Relations; AU - Autonomy; EM - Environmental Mastery; PG - Personal Growth; PL - Purpose in Life; SA - Self-Acceptance

Table 3. Paired t-test Scores from the Pre and Post Tests of the Experimental Group (n=20)

Table 4 p value shows that there is no significant difference between the pre and post-test mean scores of the control group as it was not subjected to any intervention program. The group's pre-test mean scores on the variables of IGD and PWB were almost at the same level as the post-test (IGD pre-test: $M = 38.45$, $SD = 5.02$; post-test: $M = 38.05$, $SD = 3.97$ PWB pre-test: $M = 124.60$, $SD = 51.68$; post-test: $M = 122.90$, $SD = 48.42$).

Variables	Pre-test		Post-test		t-value	p-value
	Mean	SD	Mean	SD		
IGD	38.45	5.02	38.05	3.97	.330	.745
PWB	124.60	51.68	122.90	48.42	.105	.917
PR	21.15	9.01	20.85	8.46	.106	.917
AU	20.25	9.02	20.00	8.50	.089	.930
EM	20.50	9.00	20.20	8.43	.108	.915
PG	20.10	7.52	19.95	7.24	.065	.949
PL	21.50	8.79	21.15	8.13	.124	.902
SA	21.10	8.91	20.75	8.24	.127	.900

Level of significance = $p < 0.05$

Legend: SD- standard deviation, IGD- Internet Gaming Disorder; PWB- Psychological wellbeing;

PR - Positive Relations; AU - Autonomy; EM - Environmental Mastery; PG - Personal Growth;

PL - Purpose in Life; SA - Self-Acceptance

Table 4. Paired t-test Scores from the Pre and Post Tests of the Control Group (n=20)

Cohen's d test measured the extent of the efficacy of the ACRIP after post-test in lowering the level of internet gaming disorder and increasing the psychological well-being of the experimental group. Resulting Cohen's d value (IGD 7.27; PWB 7.23) shows the large effect of the ACRIP.

Conclusion

The ACRIP as an intervention program, which aimed to reduce the symptoms of internet gaming disorder and improve the psychological well-being, has been validated as efficacious when adapted to the experimental group of adolescents. Statistically significant differences in the post-test vs. pre-test scores of the experimental group were noted on the variables of internet gaming disorder and psychological well-being using the corresponding measurement scales. Results of various tests consistently showed remarkable differences on post-test vs. pre-test scores rendering the design of the ACRIP as a valuable intervention program. With statistics that affirm the efficacy and large effect of the ACRIP, the eight-module intervention program is validated a reliable psychotherapeutic measure that helps rectify IGD and enhance the overall psychological health of adolescents.

The ACRIP was developed as a structured and short-term approach in internet gaming addiction therapy that adapted the theories of mindfulness and cognitive behavioral therapy. It applied the clear concepts of self-awareness and self-acceptance on one's thoughts and feelings; and that distorted or unhealthy thinking patterns should be and can be modified (Langer, 2000) as it prompts inaccurate assumptions about one's present life and future events. People, in general, are not fully conscious of what their thoughts and emotions are. The mindfulness technique grounds people to the underlying thoughts and emotions that cause their problems and these are very hard to face especially among adolescents. The purpose of the development and testing of the effectiveness of ACRIP is to help adolescents overcome the symptoms of IGD through cognitive restructuring. Cognitive restructuring is the key in altering these negative cognitions. The foundation of these positive thoughts and emotions need to be strengthened to become embedded in one's psychology and which ultimately improves overall well-being long term.

Ryff's psychological well-being scale was used to measure the state of wellness of the participants in each of the six areas or dimensions of their psychological well-being. These six factors that lead to positive functioning include a) autonomy, (b) environmental mastery, (c)

personal growth, (d) positive relations with others, (e) purpose in life and (f) self-acceptance (Ryff, 1995). The areas where participants were found weak at and contributed to their poor state of psychological health were probed. Looking at the pre-test scores of the experimental group in each dimension of PWB, it can be noted that the gaming adolescents were low in self-acceptance and autonomy or freedom from external influence. By educating them on the concept of mindfulness and how its application will benefit them in fully understanding and addressing their issues, participants were able to identify and open up their concerns in these life areas. The root cause of their negative thoughts and problems were analyzed and appropriately addressed during the intervention. On the sub-conscious and conscious level, differences in cognition are person-specific. These differences are the driving force between what they perceive and choose to decide. Participants were individually assisted in their thought or concept formation about themselves and of the world.

One of the key issues among the participants was low self-confidence. For some, low self-esteem drove them to play online to build their confidence, which was acquired when they level up or advance in the game. Performing well or excelling in the game validated their self-worth. For others, low self-esteem was rooted on lack of belongingness in their circles. On these sampled instances, the program helped the adolescents restore belief in themselves through cognitive restructuring. The participants were guided in identifying their strengths such that they see themselves in a positive light. They were also asked from whom they sought self-validation such that if they seek this from outside of themselves, reasons for lack of self-acceptance were explored. They were engaged in different activities that molded or helped them form new thoughts or perspectives of themselves until a positive change in mindset was achieved leading to improved overall psychological wellness.

Weakness in the dimension of autonomy or lack of self-control easily swayed adolescents to play uncontrollably despite knowing its ill effects. The ACRIP trains individuals to become mentally and emotionally resilient, to take control of their thoughts and feelings as these are what cause them to behave and function the way they do in the real world. An individual perceived control of himself has been shown to positively lessen stress and affect health (Langer & Chanowitz, 1981). Thus, the correct mindset and attitude, mindfulness on the possible consequences of their actions, and the ability to recognize and choose the better option for themselves enable them to decide and do what is right. Perceived control is not possible when a person acts mindlessly.

The statistically significant and positive impact of the ACRIP on the experimental group of adolescents substantiates that ACRIP is an efficacious remedy and demonstrates potential for long-term effectiveness. There is no doubt that from an addictive state of gaming disorder and poor mental and emotional health, the intervention ACRIP played a big role in contributing to the holistic enhancement of psychological well-being of the adolescents thereby reducing the symptoms of IGD. Indeed, the use of interventions applying techniques such as mindfulness, cognitive behavioral therapy (Li & Wang, 2013; King & Delffabro, 2014) and cognitive restructuring together with counseling and social skills training have been instrumental in countering IGD and poor psychological well-being.

The ACRIP as an intervention program was designed and executed as a group activity. It can, however, be implemented on an individual level. During the program, the participants have expressed hesitations and were observed feeling uncomfortable discussing their feelings and experiences. For this reason, an individual or one-on-one engagement were held as needed. The application of ACRIP as an intervention program is mainly to address the dysfunction

brought about by compulsive online gaming or IGD and poor psychological well-being. Review of potential difference in mean scores at pre-test and post-test in terms of age, gender, gaming profile and time spent gaming of the test groups is a limitation of the current study. This study suggests that other factors contributing or causing the adolescents' poor psychological well-being need to be prudently explored, considered and analyzed such as peer pressure, family problems and personal struggles.

Lastly, to maximize the benefit of the ACRIP as an intervention program for IGD given that it has been found efficacious among adolescents, it can be employed on other age groups (children, adults and older people). Some necessary modifications may need to be put in place to meet the needs of the target population in consideration of possibly different key issues that will be used as program themes for each module. The impact of gender difference, and result difference if participants are not enrolled in school and conduct of follow through after the completion of the ACRIP are recommended for future research. These did not form part of the on-going research as these may entail examination of other constructs and a thorough investigation of the new case at hand.

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