

The Relationship Between Internet Gaming Disorder and Mental Health

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ABSTRACT

Within the rapid development of internet use, studies have examined the impact of excessive internet use on adolescents. However, there has been a need to understand the potential mental disorder associated with internet excessive use. With the present study, we aimed to shed light on the relationship between Internet Gaming Disorder (IGD) and negative mental health. An online questionnaire was administered anonymously to 205 individuals (53% females, 47% males). Results revealed a high-sized correlation between IGD and negative mental health. Moreover, symptoms related to IGD have been related to attention, lack of social skills with family and peers, lack of time-management, physical aggression. Further studies are needed to identify the causation of IGD and future studies may focus on the effectiveness of modern counseling techniques.

Keywords

video gaming behavior, mental health, internet gaming disorder, addiction, internet addiction

Introduction

Within the rapid development of the Internet around the world, the researchers' ongoing attempts to address the advantages and pitfalls of the Internet are massive. It is our concern in this paper to study the negative impact of the Internet on individuals and in specific Internet-gaming as a disorder. Gaming disorder has been a concern on a public and professional level around the world. Strategic plans and strategies have been developed to look into gaming disorder from a clinical, social, and personal level. According to Saunders et al. (2017) a well-known collaborative strategy was developed by 15 national ministries in China named "The program of comprehensive prevention and intervention for online games addiction among juveniles" (Ministries of Education and Others, People's Republic of China, 2013). Concerns should be raised to find techniques and solutions to prevent gaming addiction in the nation.

According to the Ministry of Science in Korea (2015), ICT and Future Planning, and the National Information Society Agency, "Internet Addiction" has been the largest health problem for adolescents. Attempts were made by the Ministry of Health of Korea in cooperation with the Ministry of Science to establish a prevention plan named the "Second Internet Addiction Prevention

and Resolution Comprehensive Plan" (Saunders et al., 2017). The aim is to find the best practices and solutions to treat Internet addiction. Clinics around the world were established as a response to widespread concerns, prevention, and treatment. Several symptoms have been linked to Internet addiction such as compulsion, aggression, and mood changes. On the other hand, the term gaming disorder has been used interchangeably with Internet addiction to describe the uncontrolled desire to participate in online games.

Internet Gaming Disorder

There are many similarities between Gaming Addiction (GA) and Internet-Gaming Disorder (IGD) which caused many researchers to use the term interchangeably. The American Psychiatric Association (APA) in their *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) have noted that there is a need for further study on online gaming (Griffiths et al., 2014). The APA does not currently diagnose IGD as an official condition (Ayenigbara, 2018). Gaming addiction is similar in many ways to other types of addiction (Griffiths et al., 2014). It has been noted that individuals with (GA) frequently spend their time playing video games and are emotionally attached to their online world which in turn leads to isolation. Previous studies claim that gaming may have positive effects on individual's self-esteem

and social skills (Griffiths, 2005; Wood & Griffiths, 2007). However, parents need to constantly monitor their children to ensure that gaming is not impacting their children mental and physical health.

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Signs and Symptoms

Several signs and symptoms have been reported by the WHO organization that should last for at least one year to diagnose individuals with gaming disorder (GD). According to Stevanović et.al (2020) examples of GD signs are but not limited; lacking control over their gaming habits, setting gaming as a priority upon all other activities, and continuing gaming despite its negative consequences. The International Classification of Diseases (ICD-11) have included criteria and behavior to diagnose patient with gaming disorder. The three main behaviors are; trouble controlling the amount of time spent gaming, prioritizing gaming, and playing games regardless of negative effects (Jo et al., 2019).

For a diagnosis, these behaviors must be so severe that they affect a person's mental health.

Internet Gaming Disorder and Addiction

The WHO has listed gaming disorder due to addictive behavior in the ICD-11(Jo et al., 2019). Similar to any other addictions, IGD may negatively impact one’s life whether it affects family, work, education, and relationship with others. It was found that there has been a link between lack of actual friends (Kowert et al., 2014), depression and anxiety (Wang et al., 2018), and low academic performance (Gentile, 2009). Specialists will probably need to conduct several diagnostic tests to determine if patients have GD. Examples of diagnostic tests are mainly conducted through questionnaires and structured interview. Two of the most common questionnaire are the

Internet Gaming Disorder Scale (IGDS), and the standard measure of computer and video game addiction (Rettner, 2019).

Treatment

Gaming disorder is a recent classification, there is no clear agreement on the best treatment plan. However, it is likely that available treatments for other addictive behaviors, such as gambling addiction, can be beneficial for gaming disorder. This may include therapy, medication, and self-help groups. According to King et al., (2017) study on the treatment of IGD, it may be beneficial to combine several types of treatment such as; psychoeducation, treatment, intrapersonal, interpersonal, family intervention, and lifestyle change (Zajac et al., 2017). Previous studies suggested different approaches to treat IGD. Upon these approaches are cognitive-behavioral therapy (CBT) and session instruments and scores to measure IGD before and after the intervention that was tailored towards gamers (Han et al., 2010).

Mental Health

Mental health includes our overall emotional, psychological, and social well-being. It effects our thinking process, feelings and emotions, and responses. It also focusses on stress-management, relationship with others, and our choices and decisions. Several studies have empirically shown that gaming behaviors are linked to the board spectrum of psychopathology. In particular adolescent may suffer from anxiety, depression, attention deficit disorder, substance use, and other disorders (eg., Genile et al., 2017, Kardefelt-Winther, 2017). It has been reported that some extreme cases have suffered from seizures (Chuang 2006). Regardless of the existence of such mental disorders, many parents and educators are in need to seek professional help to support their kids and students.

Methods

The study design followed a descriptive correlational design.

Methodology

Instrument

The questionnaire used in this study was an Internet Gaming disorder developed by the authors to collect data. The survey consisted of a demographic section that included age and academic level. A total of 14-items that measured two main contracts; mental health (items; 3, 4, 5, 6, 7, 12, 14) and Internet gaming disorder (items;1, 2, 8, 9, 10, 11,13). The scale is based on a 4-Likert rating scale ranging from 0 = rarely to 4 = always. The scale reliability was tested using a Cronbach's Alpha ($\alpha = 0.9$).

Participants

A total of 205 participants have voluntarily and anonymously participated in the study. Out of the 205 (53%), were females and (47%) were males. The participants educational level ranged from primary education to secondary level education (17% in primary schools,19% intermediate level, 28% at secondary level).

Data Analysis

All analyses were conducted with SPSS software version 22. Descriptive analyses were calculated using frequencies and percentages for categorical variables. To analyze if Internet gaming disorder were associated with mental health, Spearman's correlations were calculated between Internet gaming disorder scores and mental health, to identify targeted age range that more likely suffer from Internet gaming disorder the analysis of variance (ANOVA) has been used.

Results (Times New Roman, bold, 12)

All data were entered and the frequency of all the items related to Internet gaming disorder was conducted.

Table (1) Internet Gaming Disorder, Phrase's Descriptive Statistics

Order	Phrase/%	Mean	Std. Deviation	Range of Sig and Agreement
4	Gaming affects my ability to complete homework, get to school on time, and focus on educational needs. 20.5% 22.9% 32.7% 23.9%	2.59	1.06	Medium
1	Gaming negatively impacts my relationships with parents, siblings, other family members, or peers. 17.7% 23.4% 30.7% 28.1%	2.84	1.17	Medium
2	I spend more time gaming to satisfy the urge of playing. 16.6% 20.5% 32.7% 30.2%	2.76	1.06	Medium
6	I am unable to reduce playing, my attempts to quit gaming are unsuccessful. 20.5% 25.9% 28.8% 24.9%	2.58	1.07	Medium
3	I give up other activities and loose interest in previously enjoyed activities due to gaming. 18.0% 21.0% 33.7% 27.3%	2.70	1.06	Medium
4	I continue to play games despite my problems. 22.0% 22.4% 29.3% 26.3%	2.59	1.10	Medium
7	Gaming helps me to relieve negative moods, such as guilt or hopelessness. 26.3% 21.5% 33.2% 19.0%	2.44	1.07	Medium
Overall Mean (out of 4) (sig. Low 1.00-2.00 Medium 2.01-3.00 High 3.01-4.00)		2.50	IDG Overall Mean	2.64

Discussions

The table shows the results for Internet Gaming Disorder phrases, they all show medium level of Significance and agreement, (mostly above 2.50), but the phrase that had the highest mean was “Gaming negatively impacts my relationships with parents, siblings, other family members, or peers.” With a value of (2.84) and a standard deviation of up to (1.17), followed by the phrase “I spend more time gaming to satisfy the urge of playing.” With (2.76) as a mean value. The phrase “Gaming helps me to relieve negative moods, such as guilt or hopelessness.” Had the lowest

mean of (2.44) and a standard deviation of up to (1.07).

Table (2) Internet Gaming Disorder, Statistical Significance

Source	SS	Df	MS	Number of obs	207
Model	86.36	6	14.39	F()	19.78
				Prob > F	0.000
Residual	145.55	200	0.73	R-squared	0.37
				Adj R-squared	0.35
Total	231.91	206	1.13	Root MSE	0.85

The table shows R2 value and its adjusted value, which indicates that the phrases analyze up to (37%) of Mental Health as an aspect. It also shows clearly that it's statistically significant Prob>F is equal to (0.000) which less than 5%.

Table (3) Questionnaire Reliability Statistics

Average interitem covariance	Alpha Based on Standardized Items	N of Items
0.475	0.903	14

The scale reliability was tested using a Cronbach's Alpha (0.903). Cronbach Alpha for the questionnaire questions on mental health and internet gaming disorder is 90% which identifies the high reliability and stability of the questionnaire.

Mental Health

A total of 14-items that measured two main contracts; mental health (items; 3, 4, 5, 6, 7, 12, 14). The scale is based on a 4-Likert rating scale ranging from 0 = rarely to 4 = always.

Table (4) Mental Health, Phrase's Descriptive Statistics

Order	Phrase/frequencies	Mean	Std. Deviation	Range of Sig and Agreement
2	In my experience I face uncontrollable outbursts when told to stop gaming, including physical aggression. 18.5% 20.5% 26.3% 34.6%	2.76	1.11	Medium
5	Gaming takes my attention over other areas in my life 22.4% 24.4% 28.8% 24.4%	2.55	1.09	Medium
3	Gaming affects my health habits such as eating, hygiene, and exercise. 17.6% 22.0% 28.8% 31.7%	2.74	1.08	Medium

7	Gaming results in significant changes in my mood.	2.35	1.03	Medium
	24.9% 32.2% 26.3% 16.6%			
6	I face withdrawal symptoms when video gaming is taken away or not possible (sadness, anxiety, irritability).	2.57	1.10	Medium
	22.0% 24.4% 27.8% 25.9%			
4	I have deceived family members or others about the amount of time I spent on gaming.	2.60	1.13	Medium
	22.9% 22.0% 26.3% 28.8%			
1	I have a high risk of jeopardizing my studies or job, or relationship with others due to gaming.	2.79	1.11	Medium
	19.0% 17.1% 29.3% 34.6%			
Overall Mean (out of 4) (sig. Low 1.00-2.00 Medium 2.01-3.00 High 3.01-4.00)		2.50	MH Overall Mean	2.62

The table shows the results for Mental Health phrases, they all show medium level of Significance and agreement, (mostly above 2.50), but the phrase that had the highest mean was “I have a high risk of jeopardizing my studies or job, or relationship with others due to gaming.” With a value of (2.79) and a standard deviation of up to (1.11), followed by the phrase “In my experience I face uncontrollable outbursts when told to stop gaming, including physical aggression.” With (2.76) as a mean value. The phrase “Gaming results in significant changes in my mood.” Had the lowest mean of (2.35) and a standard deviation of up to (1.03).

Table (5) Mental Health, Statistical Significance

Source	SS	Df	MS	Number of obs	207
Model	78.86	6	13.14	F()	14.89
Residual	176.54	200	0.88	Prob > F	0.000
Total	255.40	206	1.24	R-squared	0.31
				Adj R-squared	0.29
				Root MSE	0.94

The table above shows R^2 value and its adjusted value, which indicates that the phrases analyze up to (31%) of Mental Health as an aspect. It also shows clearly that it's statistically significant Prob>F is equal to (0.000) which is considered less than 5%.

Relationship between Internet Gaming Disorder and Mental Health.

To analyze the relationship between Internet gaming disorder and mental health, Spearman's correlations were calculated between Internet gaming disorder scores and Mental health scores. Table (7) below reveal a **high correlation between Internet gaming and mental health at 0.01 (P-value).**

Table (7) Frequency of Internet Gaming Disorder Items

Correlations		Mental Health	Internet gaming disorder
Mental iHealth	Pearson Correlation	1	.832**
	Sig. (2-tailed)		.000
	N	207	207
Internet gaming disorder	Pearson Correlation	.832**	1
	Sig. (2-tailed)	.000	
	N	207	207

** . Correlation is significant at the 0.01 level (2-tailed).

Note. N = 205. *p < .01.

To identify whether adolescents were more likely suffer from IGD the (ANOVA) test was used. Table (7) indicates no statistically significant age groups identified to have higher IGD.

Table (7) ANOVA Test on Age-Rang:

ANOVA					
Internet gaming disorder					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	138.504	3	46.168	1.668	.175
Within Groups	5564.471	201	27.684		
Total	5702.976	204			

Conclusion

With this study, we aimed to shed light on the correlation between video Internet gaming disorder and gamers' psychological health. Our results revealed a high -sized correlation between Internet gaming scores and gamers' negative psychological health with regard to attention, lack of social skills, lack of time-management, and physical aggression. These findings are in line with the previous work of other scholars (e.g., von der Heiden et.al, 2019; Milani et al., 2018).

Previous studies have identified predictive risk factors for IGD that were significantly related to age and gender (King et al. 2011). Therefore, it is of our interest to further examine these factors in

the future. Although our aim in this study was to better understand the correlation between IGD and gamers' mental health, we aim to further study the quality of teacher relations with gamers as potential factors for protecting gamers from IGD. Previous studies have shown that good classroom functions as a protective factor against IDF (e.g., Stavropoulos et al. 2016, Milani et al., 2018).

In sum, it is vital to assess protective factors against IGD while keeping in mind gender and age as predictive factors. Nevertheless, families are in need to know best practices that could reduce gamers in their communities from IGD.

Limitations and Future Studies

In this present study, we aimed to identify the association between Internet gaming and psychological function represented by mental health. The approach used in the study to identify the association between Internet gaming disorder and mental health was correlation analyses. We tried to identify a certain age group that was more likely associated with Internet gaming disorder but the results showed no age-range in specific. One limitation could be due to the age question that placed age in categories, and one category was "other" which represented more than 50% of the respondents. In future studies, the category "other" would be changed to less than 6 years or more than 18 years. Further studies may look into age, sex and video games played as a moderator to Internet gaming and mental health. Another limitation to study is that correlations cannot determine the direction of the causation, it is unknown whether Internet gaming is a factor that contributes to mental health issues or whether people with mental health issues contribute to Internet gaming disorder. One way to identify the direction of the causation is to conduct a cross-sectional and warrants interpretative caution to better understand the results. In addition, the sample in the study relied on participants self-selected to participate. Future studies would benefit from recruiting a representative sample to ensure accurate results. There is an ongoing need for further studies to identify effective treatments for IGD. The results of the study suggest a high correlation between IGD and negative mental

health. Symptoms related to IGD have been related to attention, lack of social skills with family and peers, lack of time-management, physical aggression.

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