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Predicting Aggressive Video Gaming Addiction on Students' Subjective Wellbeing

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Abstract

Contemporary entertainment culture has become progressively dependent on gaming, particularly among teens and young people, owing to the growth of advanced gaming consoles, Virtual Reality experiences, and pervasive mobile gaming applications. Despite the numerous advantages of gaming, including social contact, cognitive stimulation, and relaxation, concerns regarding potential negative effects, such as addictive behaviour and consequences on subjective well-being, have been articulated. This study seeks to determine the relationship between aggressive video gaming addiction and students' subjective well-being at the higher secondary level. A predictive correlational design was used in a non-experimental setting under the descriptive survey method. 77 students (who play at least one aggressive video game) gave their consent and voluntarily filled out the form. Pearson's r value between aggressive video gaming addiction and students' subjective well-being was found to be -0.459 ($p<0.001$). The adjusted R^2 value (the coefficient of determination) was found to be 0.191 ($p<0.001$). A significant negative relationship exists between students' subjective well-being and aggressive gaming addiction. This indicates that students' heightened engagement in aggressive gaming correlates with declining overall well-being. Addiction to aggressive video gaming, according to the observed model fit measure, is a significant predictor of the decrease in subjective well-being among students.

Keywords: *addiction, aggressive video gaming, mental health, and subjective well-being.*

Introduction

In recent years, the landscape of niche hobbies as a mainstream form of entertainment has undergone a remarkable transformation. Modern entertainment culture has become increasingly reliant on gaming (Floros & Ioannidis, 2021), especially among adolescents and young adults. Due to the proliferation of powerful gaming consoles, Virtual Reality

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experiences, and ubiquitous mobile gaming applications. Even though gaming offers many benefits, such as social interaction, cognitive stimulation, and relaxation (Jones et al., 2014; Granic et al., 2014), potential negative impacts, such as addictive behaviour and subjective well-being, have been raised (School, 2021). Gaming addiction has a variety of facets, but aggressive video gaming addiction, characterised by high levels of competition, often resulting in violence, is one that has attracted a lot of young adults' attention. Individuals with an aggressive video gaming addiction can experience profound changes in their subjective well-being due to a complex interplay of psychological, social, and behavioural factors.

Subjective well-being is a multidimensional concept, generally influenced by personal, societal, economic, political, environmental, and many other factors (Koç, 2017). As aggressive video games become more prevalent in contemporary society, growing interest and concern are expressed regarding their potential impact on individuals' subjective well-being (Agbaria &Bdier, 2020). With the evolution of digital entertainment, understanding the relationship between aggressive video games and subjective well-being is becoming increasingly important. Thus, the paper seeks to explore the intricate dynamics of aggressive video gaming addiction and its relationship with students' subjective well-being.

Existing Literature Review and Theoretical Construct

Video gaming addictive behaviour, or Internet Gaming Disorder (IGD), which is classified as a powerful and destructive psychological disorder under DSM-5, has become a keen area of interest among researchers worldwide. The reviewed body of literature indicates that numerous pieces of research have examined internet addiction and its relation with subjective well-being, online video game addiction and spiritual well-being, psychological well-being, and various psychological traits like aggression, self-control, personality distress, and general health (Kim et al. 2007; Omar et al. 2020; Pappa et al. 2016; Pong, 2022). We have constructed our central idea of this research from the theoretical evidence of those pieces of literature. From a broader perspective in these researches, we have tried to focus on some key concepts: addiction, aggressive video games, negative and positive effects of video game addiction, and subjective well-being.

Addiction

The American Psychological Association (APA) defines addiction as 'A state of psychological and/ or physical dependence on the use of drugs or other substances, such as alcohol, or on activities or behaviours, such as sex, exercise, and gambling.'. However, many writers have disagreed with using the term to express human relations with digital gadgets or

the internet. One of them, Margaret Shotton, describes the difficulty of explaining the term addiction concerning video games and how humans interact with computers. According to her, "The anecdotal reports had freely used the terms addiction, compulsion, and obsession to define the condition of extensive computer usage." (Shotton, 1989). But in this research, we have used the term addiction to express human obsession with online video gaming to apprehend the trend of previous social science researchers in this field.

Aggressive video games

As we have mentioned earlier, one of the most favourite and popular means of entertainment through modern computer technology in recent years is video games. Numerous kinds of video games have been played all over the world. If we categorise broadly, these games typically come under three categories: purely entertainment games, educational games, and aggressive or violent games (Ahmed & Ullah, 2013). We can define aggressive video games as an interactive entertainment product that emphasises simulated violence, intense conflict, or adversarial competition to achieve specific goals within the game world (Yao et al., 2019). This article considers PUBG, Call of Duty, Free Fire, Valorant, and Counter-Strike: Global Offensive as aggressive video games vastly reliant on gameplay mechanics, narrative elements, and player interactions.

Subjective Well-being

Subjective well-being is now an emerging concern in psychology. SWB measures an individual's happiness and satisfaction as he or she experiences and evaluates his or her own life and activities (Ding et al., 2021). It is a multidimensional concept, including an individual’s happiness, enjoyment, positive feelings, and satisfaction with life events (Koç, 2017).

The psychological prevalence of game addiction

In contrast to normal gaming, excessive video gaming has the potential to negatively impact well-being and health. Studies have shown that excessive video gaming is related to individuals’ aggression (Shao & Wang, 2019), high-stress levels (Milani et al., 2018), poor mental health (Fineberg et al., 2018; Ioannidis et al., 2018), psychological distress (Saquib et al., 2017), lower psychological well-being (Von Der Heiden et al., 2019), and self-discipline (Afriwilda&Mulawarman, 2020). The undue amount of video gaming is also may be related to poor sleep (Matsangas et al., 2019), loneliness and depression (Lemmens et al., 2011), academic underachievement, and vocational struggles (Kuss et al., 2014).

So, it is evident from the existing literature that video game addiction has lots of negative impacts on individuals' well-being, specifically on their psychological health. However, some literature also exists to oppose these conventional thoughts. The traditional games share some similarities with video games. They are characterised by cooperative and competitive objectives. As players immerse themselves in a virtual world that is a safe place to work out negative emotions, games allow a sense of control with just enough unpredictability for players to feel deeply satisfied and elated when they finally achieve formidable goals (Granic et al., 2014). Nevertheless, video games provide a space for social interaction, crossing cultural boundaries, geographical distance, generational differences, socio-economic discrepancies, and language encirclement. There is also evidence that video games are associated with positive mental health (Jones et al., 2014). Such findings from different research pieces have sparked the researcher's urge to investigate these phenomena more deeply and answer the arousing questions in mind. The researchers have approached the following objectives.

- To find out the students' addiction to aggressive video gaming with reference to their gender.
- To study the subjective well-being of the students with reference to their gender.
- To find out if there is any relationship between aggressive video gaming and students' subjective well-being.
- To study the probable predictive effect of aggressive video gaming on students' subjective well-being.

This study investigated the students' aggressive game-playing behaviours and their psychological profiles associated with addiction. Based on the reported findings from the literature search on aggressive video game addiction, the subsequent research hypotheses were developed.

H_1Male and female students significantly differ according to their addictive behaviour towards aggressive video games.

H_2Male and female students significantly differ according to their subjective well-being.

H_3Students' aggressive video gaming is related significantly to their subjective well-being.

H_4Students' aggressive video gaming can significantly predict their subjective well-being.

Significance of the Study

The increasing amount of internet use has become a key factor in human endeavours, influencing our lives in many ways. Thus, researchers nowadays are also keen to focus on impulsiveness with the internet among young adults. As a result, there are increasing amounts of studies on internet addiction, mobile addiction, and gaming addiction and their relationship with psychological well-being. However, the existing literature has fallen short of finding out the phenomenon of aggressive gaming addiction in particular.

Therefore, this paper attempts to fill this gap by reviewing relevant theoretical frameworks and examining empirical evidence to shed light on the multifaceted nature of this phenomenon. In addition, this study identifies potential risk and protective factors so that interventions, policies, and practices can be developed to promote healthy gaming behaviour and enhance students' well-being.

Methodology

Method and design

In this study, the non-experimental descriptive survey method was followed. Because several studies uncovered that gaming addiction has a significant negative relation with students' psychological well-being, the present study followed a correlational design with the predictive model to find out the correlation between the present constructs. Students' addictive behaviour towards aggressive video gaming was considered the predictor variable, and their subjective well-being was considered the outcome or criterion variable.

Participants

The study was carried out in the state of West Bengal. A total of 103 students of higher secondary level from PurbaBardhaman and Birbhum districts were purposefully approached (who play an aggressive video game) to take part in this research; among them, 77 students participated voluntarily and filled out the form consisting of 4 instruments.

Instruments and norms for assessment

The researchers themselves developed the Aggressive Video Gaming Scale to measure students' addiction to aggressive video gaming. The scale comprised seven items, each with a five-point response scale. On this scale, a score of 7 to 14 indicates mild addictive behavior; a score of 15 to 21 indicates moderate addictive behavior; and a score of 22 or more indicates a severe level of intense addiction to aggressive video gaming.

In this study, the researchers considered subjective well-being as a multidimensional concept(Koç, 2017; Wu et al., 2023). Therefore, the current study combined three scales to assess subjective well-being: the Flourishing Scale (Ed Diener and Robert Biswas-Diener, January 2009), the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010), and the Satisfaction with Life Scale (SWLS; Diener et al., 1985). The Flourishing Scale consists of eight items with a 7-point response level (7 = Strongly agree, 6 = Agree, 5 = Slightly agree, 4 = Neither agree nor disagree, 3 = Slightly disagree, 2 = Disagree, 1 = Strongly disagree); the score of 7 is the lowest possible value and indicates the lowest mental flourishment of that individual, whereas 56 is the highest possible value of the scale, indicating the highest mental flourishment. The Scale of Positive and Negative Experience comprises 12 items, split into two segments: Positive Feelings (SPANE-P) and Negative Feelings (SPANE-N), each with a 5-point response level (1= Very Rarely or Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Very Often or Always). A respondent with a score of 24 indicates that they seldom or never encounter negative emotions and frequently or consistently experience positive emotions. The Satisfaction with Life Scale consists of five items with a 7-point response level (7 = strongly agree, 6 = agree, 5 = slightly agree, 4 = neither agree nor disagree, 3 = slightly disagree, 2 = disagree, and 1 = strongly disagree). In this scale of 5, the lowest possible value represents the individual's nature of being extremely dissatisfied, whereas 35 represents the individual's nature of being extremely satisfied with life. The current study evaluates the subjective well-being of students by summing up the scores from the three previously mentioned scales, taking into account their responses. The lowest possible value, (7-24+5) = -12, represents the student's lowest level of subjective well-being, while the highest possible value, (56+24+35) = 115, represents the student's extreme level of subjective well-being.

Validity and reliability of the instruments

Initially, with the extensive literature review, eleven items in three dimensions (gaming habits, aggressive behaviour, and impact on life) comprised the item pool of the first draft of the aggressive video gaming scale. Subsequently, the scale was given to the 14 subject matter experts representing the content evaluation panel. Researchers employed the content validity ratio (CVR) approach, as proposed by Lawshe (1975), to determine the valid statement. The CVR method is a quantitative approach employed to assess the degree of consensus among experts on the significance of an item categorised as "essential." The degree of content

validity of an item is directly proportional to the number of experts who regard it as "essential." The CVR value is bounded between -1 and +1. According to Lawshe (1975), the formula to determine the CVR is as follows:

$CVR = Ne-N/2 \div N/2$

Where,

Ne = the number of subject matter experts in the panel indicating the item “essential”.

N = total number of panellists.

A group of 14 subject matter experts, consisting of university professors and research scholars, participated in this study to provide their opinions on the appropriateness of the 11 items devised for assessing the addiction to aggressive video gaming. Participants were instructed to evaluate the items using a three-point scale, where 1 represented "not useful," 2 represented "useful but not essential," and 3 represented "essential." The content validity of each item was assessed by calculating the CVR using the equation provided above. According to the critical values table in Lawshe (1975, p. 568, Table 1), a CVR (Content Validity Ratio) of 0.51 or higher is considered to indicate substantial content validity. Using the criteria of the CVR, 4 items were excluded due to their CVR being below the critical threshold for acceptance, while 7 items were considered valid. The values for the selected items' CVR (Content Validity Ratio) and the overall scale's CVI (Content Validity Index) are as follows:

Table 1: Items’ CVR (Content Validity Ratio)

Dimensions	Item exposure	N_e	N	CVR
Gaming Habits	1. I play video games for more than 3 hours consecutively.	11	14	.57
	2. I find myself getting frustrated or angry while playing video games.	12	14	.71
	3. I feel the need to increase the amount of time I spend playing video games to achieve the same level of satisfaction.	13	14	.85
Aggressive Behaviour	4. I express aggression (e.g., shouting, throwing things) while gaming.	14	14	1

	5.	• I have noticed an increase in aggressive behaviour outside of gaming sessions, which I attribute to my gaming experiences.	12	14	.71
Impact on Life	6.	I neglect other responsibilities (e.g., work, school, chores) because of gaming.	12	14	.71
	7.	Gaming has negatively impacted my relationships with family and friends.	13	14	.85
Content validity index (CVI) (mean of valid items)			-	-	.77

After that, the scale was administered to over 35 individuals who play any kind of aggressive video game to check the internal consistency reliability. The researchers here tried to maintain the ratio of 5:1 for the required sample size with the number of items by referring to Mvududu& Sink, 2013. Cronbach's alpha and McDonald's omega both have been estimated for reliability judgement (Kalkbrenner, 2021), as the researchers did not verify whether the assumption of tau-equivalence is meeting or not. The item to test reliability of each selected item is as follows:

Table 2:Item to test reliability of aggressive video gaming scale

			If item dropped	
	Mean	SD	Cronbach's α	McDonald's ω
I play video games for more than 3 hours consecutively.	3.31	1.558	0.855	0.862
I find myself getting frustrated or angry while playing video games.	3.06	1.228	0.741	0.805
I feel the need to increase the amount of time I spend playing video games to achieve the same level of satisfaction.	2.78	0.982	0.765	0.813
I express aggression (e.g., shouting, throwing things) while gaming.	3.22	1.047	0.719	0.787
I have experienced an increase in aggressive behaviour outside of gaming sessions that I attribute to my gaming	3.62	1.203	0.734	0.797

experiences.

I neglect other responsibilities (e.g., work, school, chores) because of gaming.	2.81	1.124	0.744	0.796
Gaming has negatively impacted my relationships with family and friends.	2.47	1.083	0.814	0.846

The test's overall internal consistency is as follows:

Table 3: Reliability statistics for aggressive video gaming scale

	Mean	**SD**	**Cronbach's α**	**McDonald's ω**
scale	3.04	0.798	0.797	0.836

For subjective well-being, the researchers checked the reliability of the three standardised instruments (i.e., the Flourishing Scale, the Scale of Positive and Negative Experience, and the Subjective Well-Being Scale) and did not judge the validity of those instruments as they are using standardised instruments. All of the instruments can be considered reliable according to Cronbach's alpha and McDonald's omega values, which were 0.77 and 0.81, 0.87 and 0.88, and 0.70 and 0.72, respectively.

5. Data Analyses

Before the analysis, the variables were verified for precision. Initially, descriptive statistics were computed for the entire sample in the following manner:

Table 4: Descriptives of aggressive video gaming and subjective well-being

					Skewness		Kurtosis	
	N	Mean	Median	SD	Skewness	SE	Kurtosis	SE
Aggressive Video Gaming	77	21.3	24	5.59	-1.42	0.274	1.62	0.541
Subjective Well-being	77	59.2	56	11.73	1.21	0.274	1.43	0.541

The data indicates the values of central tendency indices for aggressive video gaming addiction and subjective well-being are in proximity; skewness and kurtosis values can be considered acceptable, as skewnesses and kurtoses are lying between -2 and +2 (Muijs, 2010; Gravetter&Wallnau, 2010). Afterwards, the extent of aggressive video gaming addiction and subjective well-being was compared between male and female students using a t-test. To do so, assumptions of normality and homogeneity have been taken into consideration for implying parametric statistics.

Then, Pearson's r was employed to assess the correlation between aggressive video gaming addiction and the subjective well-being of the students by controlling their age as a covariate. As the correlation was found to be significant, linear regression analysis was done to find out the predictive effect of aggressive video gaming on students' subjective well-being.

Results and Discussion

The result of the over 77 students who play aggressive video gaming indicates 35 (45.45%) students are highly addicted towards aggressive video gaming, 26 (33.76%) of them are moderately addicted, and the rest of them have a mild addiction towards aggressive video gaming. The t-test result does not support the research hypothesis about gender disparities in aggressive gaming addiction. The result of the t-test is as follows:

Table 5: Comparison of aggressive video gaming based on gender

		Statistic	df	p
Aggressive video gaming score	Student's t	-0.641	75.0	0.524

Note. H_a $\mu_{Male} \neq \mu_{Female}$

So, it is conclusive from the above table that there is no significant difference between the male and female students' addiction to aggressive video gaming. The gender difference in subjective well-being was found insignificant too. The result of the t-test is as follows:

Table 6: Comparison of subjective well-being based on gender

		Statistic	df	p
Subjective well-being score	Student's t	-0.0869	75.0	0.931

Note. H_a $\mu_{Male} \neq \mu_{Female}$

However, the addiction to aggressive video gaming showed significant negative correlations with students' subjective well-being. The result of Pearson's r is as follows:

Table 7: Correlation between aggressive video gaming and subjective well-being

		Aggressive video gaming
Subjective well-being	Pearson's r	-0.459
	df	75
	p-value	< .001

The correlation coefficient was also significant (r = -0.462) while controlling their age. So, it is evident that a higher level of aggressive video gaming is related to the diminution of subjective well-being. But, to know to what extent addictiveness towards aggressive video gaming accounted for the diminution of subjective well-being, regression analysis was done. The result was found to be significant too.

Table 8: Regression analysis of aggressive gaming and subjective well-being

				Overall Model Test			
Model	R	R^2	Adjusted R^2	F	df1	df2	p
1	0.461	0.212	0.191	9.97	2	74	< .001

Table 9: Model coefficients forsubjective well-being

Predictor	Estimate	SE	t	p
Intercept [a]	79.486	4.792	16.588	< .001
Aggressive video gaming	-0.970	0.217	-4.464	< .001
Gender:				
Female – Male	1.087	2.549	0.426	0.671

Table 9: Model coefficients forsubjective well-being

Predictor	Estimate	SE	t	p

[a] Represents reference level

The observed model fit measure p-value<0.001 states that addiction towards aggressive video gaming is a significant predictor of the diminution of subjective well-being among the students. The adjusted R^2 value (the coefficient of determination) of 0.191 indicates that near about 19% of the variability of the subjective well-being of the students can be accounted for by their addictive nature towards aggressive video gaming. And the p-value of the model coefficient (p = 0.671) suggests that the result is free from gender disparities.

Limitations and future directions

This study was carried out in a non-experimental setting and used a correlational approach to understand the issue. In this study, regression analysis was conducted to assess the predictive impact. The researchers could not recognise the influence of other factors (except their age level), which might have influenced varying degrees of subjective well-being among the students. Therefore, a comprehensive experimental investigation can effectively tackle this problem. This study specifically targeted students who engage in playing a minimum of one aggressive video game. An investigation can be conducted with a sample of common learners to gain a more comprehensive insight into the proportion of students at this academic level who have a compulsiveness to aggressive video games. The investigators were unable to locate a comprehensive tool for assessing subjective well-being. Future researchers may be interested in developing a comprehensive measure of this construct.

Conclusion

The study concludes that there is a negative relationship between students' subjective well-being and aggressive gaming addiction. This indicates that students' increased engagement in aggressive gaming correlates with a decline in their overall well-being. This association highlights the possible psychological and emotional repercussions of excessive engagement with aggressive video games. Furthermore, the findings show that gender does not significantly influence the moderation of this aggressive gaming behaviour. This indicates that both male and female students are equally vulnerable to the detrimental effects of

aggressive gaming addiction on their well-being. Thus, interventions designed to alleviate the impacts of violent gaming should be comprehensive and non-gender-specific, emphasising the promotion of better gaming practices and addressing the wider ramifications for mental health and well-being among students.

This research has explored the relationships between the constructs to gain a better understanding of contemporary gaming culture and its impact on individuals, especially among students. By developing knowledge in this domain, this study will empower stakeholders to address challenges posed by aggressive gaming addiction and cultivate environments that foster positive subjective well-being among students. This paper will contribute to the ongoing discourse regarding game addiction and subjective well-being through a comprehensive examination of the literature and empirical findings.

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