

Internet Gaming Disorder among Health Science Students of Kathmandu Valley.

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Abstract

Internet gaming disorder is characterized by persistent, unchecked gaming to the point where it interferes with other hobbies, everyday activities, and has harmful effects. Internet gaming is more common among younger people. This study aims to investigate the prevalence of risk of developing gaming disorder, and its related risk factors among health science students of Kathmandu, Nepal. A total of 422 public health students from Purbanchal University in Kathmandu filled out a Google form that was distributed by lecturers and representatives via email, Viber, and Messenger between January to March 2021. Data were gathered with administrative approval and individual agreement, and SPSS version 25 was used for analysis. The study indicated that the majority of students (84.8%) had a normal risk of acquiring internet gaming disorder, but a considerable minority (15.2%) were at risk. Although the majority of respondents who played games had appropriate gaming behaviour, a significant percentage of them were in danger. The finding showed a relationship between internet gaming disorder and variables including gender, semester, internet use, game features, game hours, and game money spent. Video games are widespread in current culture, yet a large minority suffers harmful consequences so policymakers are advised to create regulations that promote healthy gaming habits, such as prohibiting minor players and limiting access to online games at particular times.

Keywords: Health Science; Internet Gaming; Kathmandu Valley; Undergraduate Students; Video Games.

Introduction

Internet gaming disorder (IGD) is prolonged uncontrolled gaming to the extent that gaming takes over other interests, daily activities, and negative consequences (Cheng et al., 2018; WHO, 2018). IGD may be identified by nine criteria: preoccupation, tolerance, withdrawal, deception, escape, continuing despite problems, loss of control, giving up other activities, and negative consequences (Gentile et al., 2017). Excessive internet use, now listed in the DSM-5 since 2013, is a growing concern in Nepal, leading to significant dysfunction (Shakya & Sharma, 2017). IGD is more common among the young

males aged 18–24 (Hull, 2022; Jo et al., 2019) and is associated with marital status, interpersonal relations, social/school functioning, personality, and physical health conditions (Mihara & Higuchi, 2017; Snodgrass et al., 2019). The association between the preference for game genres and the intensity of IGD behaviors mediates online gaming flow (Hu et al., 2019), also parents play a vital role in preventing IGD among adolescents (Su et al., 2018). The problematic game-playing may interact with depression, and anxiety and can magnify the impulsive behaviors associated with IGD (Archer, 2018; Wang et al., 2017) and traditional substance-related disorders (Király & Demetrovics, 2017) while on the contrary young adults who were stressed use games as a coping strategy (Rumpf et al., 2018). Studies has shown that the overall prevalence of IGD ranged from 0.7%–15.6% worldwide whereas 2 billion people play video games globally (Feng et al., 2017). In Thailand, the prevalence of IGD was 5.4% where half of the participants had a lower GPA score, and more than half had failed an exam due to gaming behavior (Taechoyotin et al., 2018). Other than failing an exam, students tend to doze, awakening amidst the night to score high in the game, experiencing a severe disturbance in terms of sleep, studies, family relations, and physical problems (Sankarasekaran et al., 2019; Yarasani et al., 2018). In Singapore, 28.2% of females students have sleep problems (Satghare et al., 2016), and in Lebanon, the average sleeping hours per night is 4.9 with the average monthly spending on internet gaming at \$74.40 (Hawi et al., 2018). In Nepal, the prevalence of IGD among health sciences undergraduate students in Pokhara was reported at 7.1% (Shahi et al., 2023), whereas 54.6% of females were found having poor sleep quality, and internet addiction and 21.2% have depressive symptoms (Bhandari et al., 2017). Video gaming is a widespread leisure activity in modern culture, but a significant minority of players experience notable functional, social, and psychological impairment due to their gaming habits (Brooks et al., 2016). So, the researcher felt urged to conduct the study on the prevalence of IGD among health science

students in Kathmandu valley. Hence, this study aims to explore evidence on the prevalence of developing IGD, and its associated factors.

Methodology

A descriptive cross-sectional quantitative study was conducted from January to March 2021, involving 422 health science students enrolled in the 4th, 6th, and 8th semesters. The sample size was determined using the Cochran formula: i.e., $n = z^2 p (1-p) / d^2$ (Khatiwada et al., 2014; Pradhan, 2018), where, $z =$ represents the level of confidence at 95%, $p =$ denotes the prevalence of IGD (50%), $d =$ signifies the margin of error (0.05), and the final sample size (n) was adjusted to 422 to account for a 10% non-response rate. The study site selected for this research was the health science faculty affiliated with Purbanchal University in the Kathmandu Valley, chosen through purposive sampling. The study included students aged above 18 who played games, while absent students and those unwilling to participate were excluded. Data were collected using an online Google form shared via platforms like Gmail, Viber, and Messenger, with support from teachers and class representatives.

The data collection tool covered socio-demographic information, device and video game-related details, internet gaming information, scholastic performance and health, utilizing alongside Young's online gaming addiction scale developed by (Young, 1998). The prevalence of the risk of developing IGD was calculated using Young's scale, consisting of nine items with a 5-point likert scale (1= never, 2= rarely, 3=sometimes, 4= often, 5= very often) modified by (Lemmens et al., 2015). The scale's internal reliability was examined with Cronbach's Alpha which was 0.85 and validity was obtained through (Pawlikowski et al., 2013).

Prior to data collection, administrative permission and individual consent were obtained to ensure adherence to ethical standards. Descriptive analyses, including frequency and percentage, and inferential analyses, such as the chi-square test, were conducted using

SPSS version 25 at a significance level of 5%, with a 95% confidence interval. A p-value less than 0.05 was considered statistically significant for all tests. The prevalence of the risk of developing IGD was determined by summing the scores of the nine items using Young’s scale, and those with a sum exceeding 55 were considered at risk, while those with a sum less than 55 were considered normal.

Results

The study comprised 422 participants, predominantly aged 20-25 years (89.1%). Gender distribution included 133 males (31.5%) and 289 females (68.5%). Most participants were single (81.3%), while 14.2% were married, and 4.5% were in a relationship. Semester-wise, 33.2% were in the 4th semester, 35.8% in the 6th, and 31.0% in the 8th.

Table 1. Socio-demographic information

Socio-demographic characteristics (n=422)		Number (n)	%
Age group (years)	20-25	376	89.1
	26 and above	46	10.9
Gender	Male	133	31.5
	Female	289	68.5
Marital status	Single	343	81.3
	Married	60	14.2
	In a relationship	19	4.5
Semester	4th	140	33.2
	6th	151	35.8
	8th	131	31.0

The majority of the students i.e., 89.8% use a mobile phone to play games, 97.2% have internet access in the home however most respondents (36.3%) play offline and 7.1% play online games for more than 8 hours a day. The most of the respondents (41.2%) play less than 1 hour playing video games each day. Likewise, 31% play action-genre video games the most, and 68.5% have not spent any money in the past 12 months.

Table 2a. Device and video game related information

Items	Number	%
Device used for playing games		
Desktop/laptop	125	29.6
Mobile	379	89.8
Tablet	10	2.4
Internet access at home		
Yes	410	97.2
No	12	2.8
Use of internet for gaming purpose on average		
None (play offline)	153	36.3
Less than 1 hour	78	18.5
1-2 hours	61	14.5
2- 4 hours	26	6.2
4-6 hours	23	5.5
6-8 hours	51	12.1
More than 8 hours	30	7.1
Hours spent playing video games each day		
Less than 1 hour	174	41.2
1-2 hours	98	23.2
2- 4 hours	85	20.1
4-6 hours	7	1.7
6-8 hours	46	10.9
More than 8 hours	12	2.8
Genre of video games played most		
Sports	59	14.0
Survival	20	4.7
Action	131	31.0
Adventure	70	16.6
Strategy	34	8.1
Platform	14	3.3
Simulation	29	6.9
RPG	14	3.3
MMO	51	12.1
Money spent on video games in the past 12		
None	289	68.5
Less than \$1	49	11.6
\$1-\$20	54	12.8
\$20-\$40	18	4.3
\$80+	12	2.8

Table 2b. Device and video game related information

Items	Number	%
Reason for playing video games		
For challenge	2	0.5
Play socially	64	15.2
For story and narratives	22	5.2
For educational	1	0.2
To relieve stress	65	15.4
Because of boredom	64	15.2
For entertainment	158	37.4
For time pass	46	10.9
Video game feature most appealing		
Social features	219	51.9
Mastering complex and challenging schemes	105	24.9
Narrative and identity	22	5.2
Graphics and aesthetic	50	11.8
Reward and punishment features	26	6.2

About 37.4% said that the reason for playing video games is for entertainment purposes and 51.9% find social features most appealing in video games.

About 73.2% said that they never used sick days or vacation days or skipped work or class just for gaming. Most of the respondents (25.4%) strongly disagree that their gaming behaviour has decreased their scholastic performance and only 0.5% have failed an exam at least once in this bachelor degree due to gaming. The majority of the respondents (83.9%) have not used any addictive substances during the past 12 months. Similarly, 57.8% said that contact with in-person friends & family never declined since gaming and 61.1% haven't gamed in inappropriate or unsafe situations. The majority of the respondents (78.7%) have 4-8 hours of average sleeping time daily. Only 14.2% have claimed that the gaming behaviour has affected their health whereas most (46.7%) complain that they have blurred vision.

Table 3. Internet gaming, scholastic performance and health

Items	Number	%
Used sick days or vacation days or skipped work or class just for gaming		
Never	309	73.2
Rarely	86	20.4
Sometimes	26	6.2
Often	1	0.2
Gaming behaviour have decreased your scholastic performance		
Strongly agree	57	13.5
Agree	54	12.8
Neutral	105	24.9
Disagree	99	23.5
Strongly disagree	107	25.4
Failed an exam at least once in this bachelor degree due to gaming		
Yes	2	0.5
No	420	99.5
Used any of addictive substances during past 12 months		
Yes	68	16.1
No	354	83.9
Contact with in-person friends and family declined significantly since gaming		
Never	244	57.8
Rarely	75	17.8
Sometimes	101	23.9
Often	2	0.5
Gamed in inappropriate or unsafe situations (in class, at work, while driving)		
Never	258	61.1
Rarely	69	16.4
Sometimes	88	20.9
Often	7	1.7
Average sleeping time (hours/day)		
Less than 4 hours	12	2.8
4-8 hours	332	78.7
More than 8 hours	78	18.5
Gaming behaviour have affected the health		
Yes	60	14.2
No	268	63.5
I don't know	94	22.3
If yes, the health consequences		
Insomnia	17	28.3
Itchiness and dry eyes	7	11.7
Blurred vision	28	46.7
Headaches and migraine	8	13.3

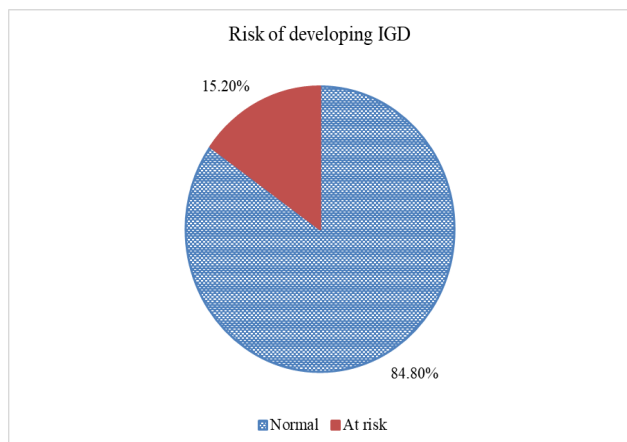


Figure 1. Prevalence of developing internet gaming disorder

The risk of developing IGD, most of the students were at normal risk of developing IGD i.e., 84.8 percent however 15.2 percent of the students were at the risk of developing IGD. The majority of the respondents who play games had normal gaming behaviour but a fair amount of the respondents were at risk.

Various factors such as gender (p=0.001) and semester (p=0.001), have been associated with the risk of developing IGD. Similarly, the using internet for gaming purposes (p=0.001), hours spent playing video games each day (p=0.001), the genre of video games (p=0.001), money spent on video games (p=0.001), the reason for playing video games (p=0.001), and most appealing video game feature (p=0.001) are also associated with risk of developing IGD. Likewise, students using sick days or vacation days or skipped work or class just for gaming (p=0.001), gaming behaviour has decreased scholastic performance (p=0.001), contact with in-person friends and family declined significantly since gaming (p=0.001), and gamed in inappropriate or unsafe situations in class, at work, while driving (p=0.001) are associated with risk of developing IGD. As well, gaming behaviour has affected health (p=0.001), and the health consequences (p=0.001) are associated with the risk of developing IGD.

Table 4. Factor associated with risk of internet gaming disorder

Factors	Risk of developing IGD	
	Chi Sq	P-value
Age	17.541	0.025
Gender	44.475	0.001
Marital status	8.928	0.012
Semester	69.446	0.001
Devices used for playing games	7.224	0.007
Internet access in your home	2.208	0.137
Use internet for gaming purpose on average hours/day	186.558	0.001
Hours spent playing video games each day	49.028	0.001
Genre of video games play most	56.064	0.001
Money spent on video games in the past 12 months	99.951	0.001
Reason for playing video games	146.37	0.001
Most appealing video game feature	114.854	0.001
Used sick days or vacation days or skipped work or class just for gaming	99.524	0.001
I think gaming behaviour have decreased my scholastic performance	132.237	0.001
Failed an exam at least once in this bachelor degree due to gaming	0.359	0.549
Used any of addictive substances during past 12 months	70.133	0.001
Contact with in-person friends and family declined significantly since gaming	25.416	0.001
Gamed in inappropriate or unsafe situations in class, at work, while driving	148.182	0.001
Average sleeping time hours/day	11.791	0.003
Gaming behaviour have affected the health	104.721	0.001

Discussion

This study found that 15.2% of the students were at the risk of developing IGD, while similar studies in Nepal showed that prevalence of IGD was 2.9% (Joshi et al., 2022), 7.1% (Shahi et al., 2023), 8.5% (M. V. Shrestha et al., 2020), and 18.9% among adolescents (R. Shrestha et al., 2023). This variations in prevalence could be attributed to differences in sample characteristics, assessment instruments, geography and survey methodologies employed. The fact that gender was related with the risk of developing IGD in this study findings. Gender emerges as a significant and unalterable risk factor, as demonstrated by the findings of these studies in India (Singh et al., 2021), China (Yang et al., 2020), and Thailand (Taechoyotin et al., 2018). Studies have shown that the students who had gaming disorder had more hours of playtime related with gender (Hull, 2022; Jo et al., 2019; Shakya & Sharma, 2017). Besides, the average monthly spending on Internet gaming rose to US \$74.40 and the GPA went down leading to poor scholastic performance (Sankarasekaran et al., 2019). However, this study showed that the failing an exam in bachelor degree was not related with risk of developing gaming disorder but was related with spending money during gaming. The amount of money spent on video games can vary significantly, with some individuals spending large sums of money to purchase the latest gaming consoles and games.

This study found that average number of hours of sleep per night was related with risk of developing IGD. Similar study showed the same result where the average number of hours of sleep per night was 4.9 for participants having IGD (Sankarasekaran et al., 2019). The genre of video games also influences an individual's gaming behaviour (Hu et al., 2019), with some preferring action, adventure, or role-playing games, while others prefer sports, racing, or puzzle games. This study also showed that genre of video games was related with risk of developing IGD. The reasons for playing video games can range from stress relief and entertainment to social interaction and com-

petitiveness. Some individuals find specific features of video games, such as graphics, storyline, or game mechanics, most appealing.

This study findings revealed that those who gamed in inappropriate or unsafe situations in class, at work, while driving were related to developing IGD. Supporting the cause, (Sankarasekaran et al., 2019) showed that excessive gaming behaviour can have negative consequences on an individual's life. Gaming can lead to the use of sick days or vacation days or even skipping work or class to play games, decreased scholastic performance, decreased contact with in-person friends and family. Moreover, excessive gaming behaviour can also have adverse health consequences (Sankarasekaran et al., 2019; Yarasani et al., 2018), including physical and mental health problems such as obesity, back pain, depression, anxiety, and addiction (Mihara & Higuchi, 2017; Snodgrass et al., 2019).

Individuals who spend a significant amount of time playing video games may be at risk of developing IGD, a condition that is associated with negative psychological, social, and physical consequences. Thus, video gaming can be an entertaining pastime, individuals need to monitor their gaming behaviour to prevent it from negatively impacting their personal and professional lives. The study's scope is confined to home science students in Kathmandu Valley, potentially limiting the broader applicability of the findings to other populations. The quantitative design may not capture the nuanced qualitative aspects of IGD and related behaviours. The study primarily addresses the prevalence of IGD and its associated risk factors, which may overlook other dimensions of this complex issue.

Conclusion

The mean score of human capital and structural capital is just above the average but the mean score of customer capital is higher and relatively better as compared to human capital and structural capital.

There is positive correlation between dependent and independent variable. The multiple regression analysis is performed to test the statistical significance and the impact of intellectual capital. It is concluded that customer capital as a major predictors of firm's performance whereas human capital and structural capital are not statistically significant predictors with perspective of commercial banks in Chitwan. Banking executives were found to be in the positive attitude in terms of client or customer value.

In Nepalese organizations, intellectual capital is a relatively recent notion. Nepalese culture has a very poor and weak intellectual capital orientation. Present study appeared as a successful piece of research work that explored both the intellectual capital conceptualization and orientation in banking sector. As a result, policymakers, researchers, managers, potential and existing shareholders, scholars, and others will be affected by these findings. The information can be useful to academics and researchers studying at firm performance and intellectual capital in the banking industry. It is suggested that future researchers do a detailed study into the linked concept. Finally, this study is contributed to a better understanding of intellectual capital in a Nepalese organization.

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