ORIGINAL RESEARCH

Online gaming and its effect on academic performance of Bangladeshi university students: A cross-sectional study

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Abstract

Background and Aims: Due to the availability of more sophisticated cell phones with top-notch gaming functions, the present generation is more active. The available literature indicates that adolescents experience a variety of psychological issues, like low self-control brought on by an addiction to mobile games. Because of this, the aim of this study is to control the prevalence of, and factors that contribute to, online gaming addiction and its effects on academic performance in Bangladeshi university students.

Methods: Convenient sampling was adopted to collect primary data from 399 Bangladeshi university students utilizing a prestructured questionnaire. Descriptive statistics, the χ^2 test, binary logistic regression, and multinomial logistic regression were also used to accomplish the study's objective.

Results: According to this study, 62.7% of students play online games over 30 h every week. The findings also show that male students are more inclined than female students to show signs of addiction. Also, regular online gaming can result in long-term problems, and that factor including age, internet access, educational background, and frequency of play can influence the likelihood of these problems. The findings shows that a lower cumulative grade point average (CGPA), less physical activity, and less study time are associated with playing online games for at least 30 h per week. Moreover, the study found that playing online games, playing for long time, and skipping class can all have an adverse effect on a student's academic performance.

Conclusions: The authors recommend that the authorities set up a good entertainment environment and take into account the findings of this article to discourage students from playing online games. Furthermore, encouragement of extracurricular activities such as sports or other pursuits is also essential in assisting Bangladeshi students in overcoming their addiction to mobile games.

KEYWORDS
academic performance, Bangladesh, mobile game, online game, students

1 | INTRODUCTION

The worldwide web, considered to be among the biggest technological developments of our time, has become an indispensable part of daily life and is completely changing the way we communicate with one another. The rapid growth of smartphones and high-speed internet has made online gaming more accessible than ever, leading to a rise in the number of young people engaging in online gaming activities.[1]

Massively multiplayer online role-playing games (MMORPG) have become one of the most played and difficult video games in recent years. Previous research shows that men are more likely than women to develop an addiction to MMORPGs due to the games' competitive, interactive, and teamwork aspects.[2–4] World of Warcraft (WOW) is one of the most popular enormously multiplayer online role-playing games in the globe, with over 125 million players.[5] Over 42 million individuals globally engage in the popular virtual game, Destiny 2. The risks associated with online gaming have been the focus of several types of research in western nations. According to Yee, half of players of massively multiplayer online games (MMOs) said they were "addicted" to the games.[6] Compared to other computer game players, more MMO players expressed that they enjoyed the game more, planned to continue playing, and had more online friends. Despite 39% of people having access to the internet, an estimated 6% of individuals globally suffer from internet addiction.[7]

While online gaming can have some benefits, such as improving hand-eye coordination and problem-solving skills, it can also have negative effects, such as addiction and disrupted sleep patterns.[8] Addiction to mobile gaming by kids and teenagers leads to a variety of psychological, physical, and social issues for these individuals. These consequences are exacerbating physical and psychological harm such as social isolation, obesity, game-induced epilepsy, anger, and violence. Addiction to mobile games is also a feature of internet gaming disorder.[3] Researchers from all around the world have conducted studies to determine the cause of this addiction. According to Sherry et al., 68% of teenagers play mobile games on a weekly basis.[9]

There is a dearth of research on the addiction to mobile gaming in children and adolescents, but even fewer on the subject of addiction in Bangladeshi students. Online gaming has grown especially quickly in Bangladesh, where it has influenced many university students' cultural perspectives.[10] With millions of players worldwide, online gaming has become a global phenomenon, so this trend is not unique to Bangladesh.[11] The effects of online gaming on Bangladeshi university students have not gotten much attention despite this growth, and this is a topic that requires more attention.[12]

Adolescents who are dependent on mobile gaming for gaming suffer from cognitive impairment, poor mental health, depression, anxiety, loneliness, stress, lack of sleep, low self-control, personality disorders, and poor academic performance.[13] Additionally, playing video games online is becoming a becoming an increasingly common pastime for college students everywhere. But even though it's commonly known that gaming improves social interaction, hand-eye coordination, and problem-solving abilities.[14,15] Concerns regarding the detrimental impacts of excessive gaming among students are also growing. Thus, the main objective of this study is to look into the reasons behind mobile gaming addiction and how common it is among Bangladeshi university students. Additionally, this study will evaluate the detrimental effects of online gaming on academic achievement in Bangladeshi university students.

2 | METHODS

2.1 | Participants

Between January and February of 2023, a cross-sectional retrospective survey of Bangladeshi university students was carried out among those attending Shahjalal University of Science and Technology (SUST), University of Chittagong (CU), and Noakhali Science and Technology University (NSTU). Cochran's formula[16] was employed to determine the required sample size, taking into consideration a 5% margin of error and a 5% level of significance ($\alpha = 0.05$).

$$n = \frac{Z_{\frac{\alpha}{2}}^2 \; p\left(1 - p\right)}{d^2}$$

The formula indicates that $n = 384$ is the appropriate sample size. Convenient Sampling Technique was employed in selecting the participants. Three hundred and ninety-nine responses in all have been collected and taken into account for the final analysis. Of the respondents, 210 were from NSTU, 112 from SUST, and 77 from CU.

2.2 | Study design and procedure

A well-structured questionnaire was used to collect primary data from undergraduate, graduate, and postgraduate students for the study. Respondents received a link to expeditiously respond to the Google Forms-created questionnaire. The demographic profiles, social media constructs, social media usage, and academic performance of the respondents are all included in the questionnaire. The dependent variables in data analysis are students' academic performance (SAP), playing time in a week, and harmful effects of online gaming on the study. Independent factors includes respondents' online gaming time-length, daily exercises, involving extra curriculum activities, students' different demographic characteristics, daily study hours, frequency of class missing, and so forth.

2.3 | Statistical analysis

Number of statistical methods has been applied to the data analysis. Frequencies and percentages of categorical data have been used in descriptive statistics to evaluate the individual characteristics. The study applied binary logistic regression and measures of association to determine the significant association between the relevant variables at a significance level of 5%. Using a two-sided test statistic and a *p*-value of less than or equal to 0.05, a multinomial logistics regression analysis

was performed to determine the effect of the explanatory variables on the CGPA (cumulative grade point average). For data analysis, IBM SPSS for Windows (Version 25.0) was employed.

3 | RESULTS

3.1 | Background characteristics of the respondents'

Among 399 respondents, 79.2% (316) were male and rest of them were female. Maximum respondents were living in urban area (62.2%). 32.1% respondents reported that they were facilitated with a very good internet service. The percentage of freshman was 25.6%, 20.8% was sophomore, and 18.8% was from senior year. Also, 9% respondents was from class of postgraduate. It was observed that most of the respondent's family income is BDT 25,000 (around $228) to BDT 50,000 (around $456) (54.6%, $n = 218$), followed by the respondents whose family income is below BDT 25,000 (around $228) (27.8%, $n = 111$), minimum of the respondent's family income is above BDT 50,000 (around $228) (17.5%, $n = 70$). Majority (62.7%) of the students play online game more than 30 h in a week. Though maximum portion (56.9%) of the respondents were involved with extracurricular activities, most of them (64.2%) didn't do any regular exercise. Among all the respondents only 22% of them read more than 3 h in a single day and 44.6% students read 1–3 h in a day. As a result our study has found that, only 5.5% respondents secured their CGPA with 3.50–4 and rest of them were below 3.50 (Table 1).

3.2 | Relations between background characteristics with the respondents' opinion regarding long term problems of online gaming habit

Highest percentage (85.1%) from the age group 20 to 25 who believe that online game playing habit can lead to long term problems. There is a significant ($p < 0.05$) association between age group and their perspective regarding this question. There was also a significant association ($p < 0.05$) in terms of internet facility, educational qualification, students CGPA with their opinion on long term problems of online gaming. Respondents who play online games most of the time of a day, believe that it has a long term problems compare to those who not (Table 2).

3.3 | Relationship of background characteristics with the respondents' gaming tenure

Pupils who play at least 30 h online game in a week has a lower CGPA rather than those who not and there is a significant ($p < 0.001$) association between CGPA and spending time on playing games at least 30 h. Participants study hour, habit of regular exercise and behavior of bunk classes has a significant ($p < 0.001$) association with the 30 h online gaming time in a week (Table 3).

TABLE 1 Background characteristics of the respondents.

Background characteristics	Categories	Frequency	Percent
Gender	Male	316	79.2
	Female	83	20.8
Age	15–20	84	21.1
	20–25	282	70.7
	25–30	33	8.3
Living area	Rural	151	37.8
	Urban	248	62.2
Internet facility	Good	121	30.3
	Very good	128	32.1
	Moderate	104	26.1
	Poor	24	6
	Very poor	22	5.5
Educational qualification	1st year	102	25.6
	2nd year	83	20.8
	3rd year	103	25.8
	4th year	75	18.8
	Master's	36	9
Family monthly income (in thousands)	Below 25	111	27.8
	25–50	218	54.6
	Above 50	70	17.5
Playing online games at least 30 h a week	No	149	37.3
	Yes	250	62.7
Involving in extra curriculum activities	No	172	43.1
	Yes	227	56.9
Regular exercise	No	256	64.2
	Yes	143	35.8
Study hour	Below 1 h	133	33.3
	1–3 h	178	44.6
	More than 3 h	88	22.1
CGPA	2.50–3.00	220	55.1
	3.00–3.50	157	39.3
	3.50–4.00	22	5.5

Abbreviation: CGPA, cumulative grade point average.

3.4 | Association of respondents' CGPA with study hour and class missing behavior

Online gaming can have an adverse impact on academic performance, particularly if students play frequently and miss class because of their gaming habits. There is a significant ($p < 0.001$) association between study hour and CGPA besides class skipping behavior due to playing games and CGPA (Table 4).

TABLE 2 Association of background characteristics with the respondents' opinion regarding long term problems of online gaming habit.

Background characteristics	Categories	Online gaming makes long-term problems		p Value
		No (%)	Yes (%)	
Age	15–20	2 (2.4)	82 (97.6)	0.002
	20–25	42 (14.9)	240 (85.1)	
	25–30	1 (3)	32 (97)	
Internet facility	Good	14 (11.6)	107 (88.4)	0.012
	Very good	5 (3.9)	123 (96.1)	
	Moderate	19 (18.3)	85 (81.7)	
	Poor	4 (16.7)	20 (83.3)	
	Very poor	3 (13.6)	19 (86.4)	
Educational qualification	1st year	0 (0)	102 (100)	0.000
	2nd year	14 (16.9)	69 (83.1)	
	3rd year	16 (15.5)	87 (84.5)	
	4th year	13 (17.3)	62 (82.7)	
	Master's	2 (5.6)	34 (94.4)	
CGPA	2.50–3.00	31 (14.1)	189 (85.9)	0.000
	3.00–3.50	7 (4.5)	150 (95.5)	
	3.50–4.00	7 (31.8)	15 (68.2)	
Playing online games for long period of time	No	29 (16.8)	144 (83.2)	0.002
	Yes	16 (7.1)	210 (92.9)	
Study hour	Below 1 h	8 (6)	125 (94)	0.041
	1–3 h	27 (15.2)	151 (84.8)	
	More than 3 h	10 (11.4)	78 (88.6)	

Abbreviation: CGPA, cumulative grade point average.

3.5 | Influence of online gaming on opinion of creating long term problems

Individuals ages between 20 and 25 have significantly higher odds in assurance of long-term problems of online gaming (OR = 1.14, CI: [1.03–8.59], $p < 0.05$) compared to those aged 15–20. Besides, those with good internet facilities have significantly higher odds (OR = 3.22, CI: [1.012–9.23], $p < 0.05$) of endorsing long-term problems than those with a very poor internet facility. Also, students in the first year of their university life have significantly higher odds (OR = 2.11, CI: [1.23–8.32], $p < 0.05$) of facing long-term problems caused by online gaming compared to those in master's programs. The results suggest that students who play online games for more extended periods or most days are more likely to face long-term problems (OR = 2.65, CI: [1.39–5.04], $p < 0.05$) than those who do not (Table 5).

TABLE 3 Association of background characteristics with the respondents' gaming tenure.

Background characteristics	Play online games at least 30 h a week			
	Categories	No (%)	Yes (%)	p Value
CGPA	2.50–3.00	66 (30)	154 (70)	0.000
	3.00–3.50	80 (51)	77 (49)	
	3.50–4.00	19 (86.4)	3 (13.6)	
Study hour	Below 1 h	72 (40.4)	106 (59.6)	0.000
	1–3 h	65 (48.9)	68 (51.1)	
	More than 3 h	76 (86.4)	12 (13.6)	
Exercise regularly	No	112 (43.8)	144 (56.3)	0.000
	Yes	106 (74.1)	37 (25.9)	
Absence in classroom because of playing online games	Frequently	50 (44.2)	63 (55.8)	0.000
	Very frequently	13 (34.2)	25 (65.8)	
	Occasionally	19 (39.6)	29 (60.4)	
	Rarely	71 (74)	25 (26)	
	Very rarely	97 (93.3)	7 (6.7)	

Abbreviation: CGPA, cumulative grade point average.

3.6 | Impact of associated characteristics on students' CGPA

This study found that students who played for at least 30 h in a week had significantly higher odds (OR = 11.10, CI: [2.97–41.58], $p < 0.001$) of securing low CGPA as 2.50–3.00. Besides, those who studied for less than 1 h or between 1 and 3 h had significantly higher odds (OR = 24.77, CI: [9.90–59.42], $p < 0.001$) and (OR = 19.07, CI: [2.97–41.58], $p < 0.001$) of having a CGPA in the range of 2.50–3.00. Also, for missing classes, the study found that those who missed classes frequently or very frequently had significantly higher odds of having a low CGPA as below 3.50 (Table 6).

3.7 | Health issues and online gaming

This study also found that, online gaming caused some health issues reported by the respondents. Most of the respondents (63.9%) reported that they had a feeling of bad headache. Besides, nausea (56.4%), dizziness (52.1%) also noticed among the respondents after gaming long time (Figure 1).

4 | DISCUSSION

The aim of this research was to determine the prevalence of online gaming addiction among Bangladeshi university students and the ways in which it impacted their relationships with one another and their academic performance. There have been initiatives to

TABLE 4 Association of respondents' CGPA with study hour and class missing behavior.

Background characteristics	Categories	CGPA			p Value
		2.50–3.00 (%)	3.00–3.50 (%)	3.50–4.00 (%)	
Study hour	Below 1 h	57 (42.9)	74 (55.6)	2 (1.5)	0.000
	1–3 h	82 (46.1)	86 (48.3)	10 (5.6)	
	More than 3 h	18 (20.5)	60 (68.2)	10 (11.4)	
Missing class because of playing online games	Frequently	57 (50.4)	54 (47.8)	2 (1.8)	0.005
	Very frequently	15 (39.5)	23 (60.5)	0 (0)	
	Occasionally	17 (35.4)	29 (60.4)	2 (4.2)	
	Rarely	32 (33.3)	59 (61.5)	5 (5.2)	
	Very rarely	36 (34.6)	55 (52.9)	13 (12.5)	

Abbreviation: CGPA, cumulative grade point average.

TABLE 5 Binary logistic regression regarding the opinion of creating long term problems due to online gaming.

Background characteristics	Categories	Odds ratio (95% CI)	p Value	Adjusted odds ratio (95% CI)	p Value
Age	15–20	Reference			
	20–25	1.139 (1.033–8.589)	0.007	0.592 (0.109–3.221)	0.04
	25–30	0.78 (0.068–8.91)	0.842	4.123 (0.236–72.147)	0.332
Internet facility	Good	Reference			
	Very good	3.219 (1.122–9.23)	0.03	0.603 (0.112–3.241)	0.02
	Moderate	0.585 (0.277–1.235)	0.04	0.969 (0.407–2.309)	0.035
	Poor	0.654 (0.195–2.193)	0.492	0.916 (0.221–3.804)	0.904
	Very poor	0.829 (0.217–3.162)	0.783	1.548 (0.47–5.095)	0.472
Educational qualification	1st year	2.105 (1.226–8.321)	0.03	4.325 (3.534–10.541)	0.02
	2nd year	0.29 (0.062–1.349)	0.02	0.622 (0.082–4.742)	0.03
	3rd year	0.32 (0.07–1.466)	0.142	0.967 (0.134–6.983)	0.073
	4th year	0.281 (0.06–1.317)	0.107	0.976 (0.135–7.067)	0.981
	Masters	Reference			
Playing for long period of time	Yes	2.643 (1.385–5.044)	0.003	2.08 (0.971–4.455)	0.045
	No	Reference			

investigate the motivations behind this addiction and to find out more about its detrimental impacts.

Our findings indicated that, when it comes to online game addiction, male students are more prone than female students to display addicted behavior. According to our research, students with better internet access intended to play more online games. Playing video games was also more prevalent among freshmen. Students' inclination to play online games has been found to be influenced by the availability of the internet. Due to greater accessibility to the internet, students in urban areas began spending more time online and became virtual entertainment providers by playing multiplayer video games. Furthermore, when it came to playing online games, students from wealthy families had the best of intentions. It starts with different addictions (such as an addiction to mobile games), and it is also responsible for deadly behaviors like

suicide attempts.[17–19] In this manner, we can avoid the curse of game addiction as soon as possible. Our study has discovered an intriguing link between academic performance and online game addiction. University students in their early careers were more likely to engage in online gaming. This rate started to decline at the MS level or the last year of their graduation. It is evident that students who spent over 30 h playing internet games were less likely to exercise on a regular basis. They also missed class inexplicably because of their long-standing gaming habit. It is obvious that students who do not engage in extracurricular activities have a higher likelihood than other students of developing a mobile app addiction. This involvement is cited as one of the influences that trigger online game addiction in the study's results.

Determining the connection between academic performance and mobile gaming addiction was one of the study's main goals. This

TABLE 6 Multinomial logistic regression of CGPA with associated characteristics.

CGPA category[a] Characteristics	Categories	2.50–3.00 OR (95% CI)	p Value	AOR (95% CI)	p Value	3.00–3.50 OR (95% CI)	p Value	AOR (95% CI)	p Value
Play at least 30 h in a week	Yes	11.103 (2.965–41.575)	0.000	0.915 (0.166–5.047)	0.918	1.736 (0.486–6.207)	0.03	0.409 (0.081–2.08)	0.028
	No	Reference category							
Hamper study	Frequently	22.4 (1.716–92.343)	0.018	3.031 (0.194–47.248)	0.042	0.615 (0.111–3.411)	0.031	0.261 (0.042–1.609)	0.014
	Very frequently	32 (1.959–52.756)	0.015	7.238 (0.354–48.048)	0.019	5.731 (0.773–42.504)	0.042	2.602 (0.286–23.706)	0.039
	Occasionally	3.5 (0.236–51.899)	0.063	1.157 (0.067–20.125)	0.092	0.692 (0.118–4.067)	0.068	0.435 (0.067–2.83)	0.084
	Rarely	1 (0.053–18.915)	0.072	0.208 (0.009–4.692)	0.103	0.635 (0.108–3.739)	0.615	0.265 (0.039–1.799)	0.174
	Very rarely	Reference category							
Study hour	Below 1 h	24.768 (9.897–59.421)	0.000	17.529 (11.913–68.921)	0.000	2.869 (1.31–28.42)	0.02	29.659 (15.692–52.839)	0.000
	1–3 h	19.067 (4.926–73.797)	0.000	20.446 (4.546–91.947)	0.000	2.115 (0.756–5.918)	0.042	3.07 (0.944–9.985)	0.052
	More than	Reference category							
Missing class	Frequently	22.4 (9.562–52.486)	0.000	13.839 (4.989–41.547)	0.000	18.327 (7.902–62.091)	0.000	6.829 (1.629–33.662)	0.000
	Very frequently	28.667 (5.448–50.831)	0.000	9.309 (1.19–72.815)	0.034	4.916 (1.063–22.722)	0.041	3.268 (0.498–21.469)	0.021
	Occasionally	16 (1.746–46.659)	0.014	6.376 (0.523–67.675)	0.146	5.06 (0.634–40.419	0.126	3.426 (0.345–33.976)	0.029
	Rarely	13.333 (2.458–72.338)	0.003	10.48 (1.568–70.024)	0.015	5.349 (1.159–24.689)	0.032	4.821 (0.897–25.912)	0.067
	Very rarely	Reference category							

Abbreviation: CGPA, cumulative grade point average.

[a]Reference category is 3.50–4.00.

study revealed an association between university students' CGPA and internet gaming. The average amount of time students spend playing video games each week—30 h—affects their capacity to learn and attend class. As a consequence, their CGPA is low. Our research provided strong proof that there is a connection between internet gaming addiction and academic performance. This ground-breaking study examines the effect of online addiction on Bangladeshi university students' academic achievement. The findings of our study contradict those of Fabito et al., who found no link between tertiary students' addiction to mobile gaming and their academic performance in earlier research.[20] In contrast to our results, a different study by Samaha and Hawi found no connection between an obsession with mobile games and academic performance.[21] Amid COVID-19 pandemic, Abou Naaj et al. discovered an association between academic performance and digital games.[22] Likewise, Valdez et al. figured out that students benefit from moderate online gaming.[23] Nonetheless, our research has shown a strong correlation between students' lower academic achievement and their long-term online gaming habit. Long-term online gaming negatively affects SAP, which is same as of certain other studies.[24–27] The findings of Kwok et al. also support this study, showing the opposite relationship between internet gaming and improved academic performance.[28] Additionally, a negative correlation between playing online games and academic success was discovered by Islam et al.[29]

Furthermore, the results of this investigation brought to light several grave health concerns associated with an extended online gaming habit. For example, the percentage of students reporting headaches is 63.9%, which is considerably higher than the findings of Sayeed et al. and lower than Correa Rangel et al.[11,30] Students who play online games also get dizziness and nausea. Consequently, their health suffered.

5 | IMPLICATIONS

This study's outcomes have implications for two main areas.
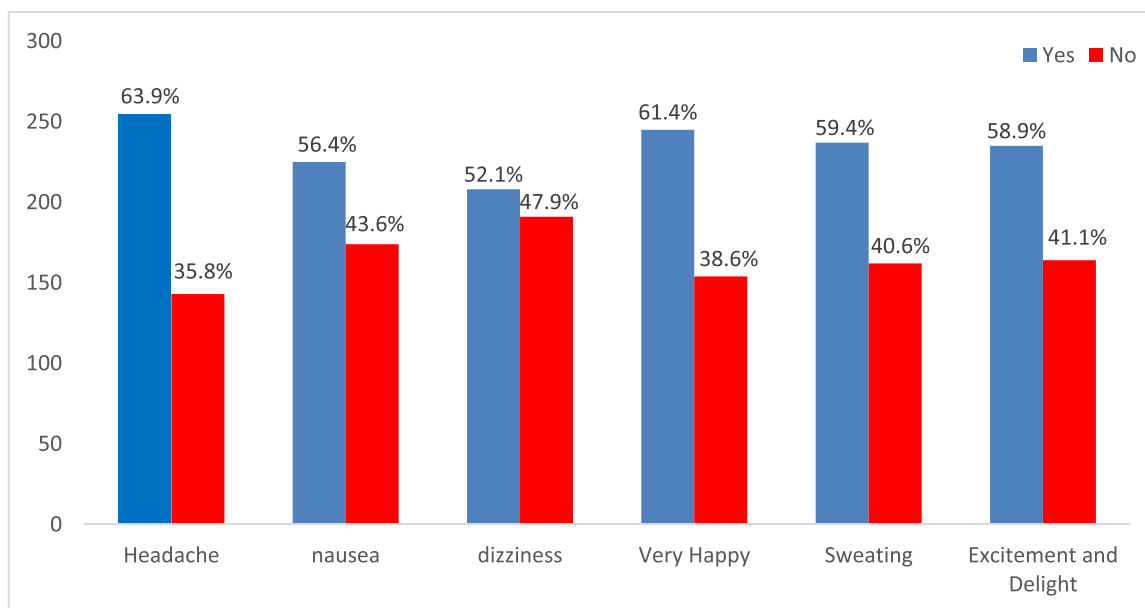
FIGURE 1 Gamer feelings after playing online games.

5.1 | Future research

It is of the utmost importance to investigate the relationship between college students' online gaming habits and their academic performance. There are many different types of universities in Bangladesh, including general, engineering, and science and technology universities. To further explore this relationship, future studies could focus on particular university categories. Employing innovative qualitative methods for collecting data like Online Photovoice,[31,32] and analyzing data through Online Interpretative Phenomenological Analysis[31,33] could facilitate similar studies among students. Community-based participatory research[31,34] approach can also be another strategy for more grounded research to record students' ideas, emotions, pictures, and actions based on their individual experiences. These approaches would help unravel the impact of online gaming and shed light on the factors that either support or hinder individuals in managing addictive gaming behaviors.

5.2 | University authority, teachers, and policy makers

Educational institutions must take proactive measures to involve students in cocurricular activities. Teachers should play a pivotal role in educating students about the impact of online gaming on their academic performance, as well as their mental and physical well-being.

University extracurricular activities are available, but because they are optional, very few students take advantage of them. University residence halls should have well-equipped indoor game rooms with games like chess, table tennis, badminton, and carom to promote student engagement. Cocurricular activities could become required for all students by the University Grants Commission (UGC), the regulatory body that oversees all public, private, and international universities in Bangladesh. Moreover, planning club activities and outdoor games could assist students in taking a break from extended internet gaming sessions. In addition to encouraging them to spend time outside, this program would lessen their propensity to withdraw into their dimly lit residential rooms, which would help them fight feelings of loneliness.

The learning environment could be improved by active student and teacher participation and effective supervision. Each academic year or semester, requiring students to participate in cocurricular activities promotes a balanced lifestyle that improves both their academic performance and mental and physical health.

6 | CONCLUSION

The findings of the study show that regular online gaming can result in long-term problems, and that age, internet access, educational background, and frequency of play can all influence the likelihood of these problems. These findings suggest that a lower CGPA, less physical activity, and less study time are associated with playing online games for at least 30 h per week. As per the findings of the study, a student's CGPA, which measures their academic performance, can be influenced by various factors such as studying, playing online games, and missing school.

According to our research, parents and educational institutions should keep a watchful eye on and regulate their kids' gaming habits and promote balanced, active lifestyles. Limiting screen time, encouraging social interaction and physical exercise, and providing counseling and support services to children who may be struggling with gaming addiction or other issues are some ways to achieve this.

Overall, our findings highlight the essence for more research and education regarding the harmful effects of online gaming, particularly in Bangladesh where youth gaming is becoming more and more prevalent. By addressing these issues, we can make sure that students can benefit from gaming while avoiding any potential negative effects.

6.1 | Limitations

The equipment and data collection methods used in this investigation are subject to some limitations. Information was sampled by considering a subset of Bangladesh's universities rather than collecting data from all of them. In addition to private and public universities, there are also general, engineering, scientific, and technology schools within public universities. Because they weren't divided into groups according to their areas of expertise, the study's conclusions couldn't be applied broadly. Lastly, there were problems with the study's equipment. Results may still be skewed due to concerns about social acceptability even though respondents were instructed to give their best guesses and honest answers to every question.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. [Corresponding author or manuscript guarantor] had full access to all of the data in this study, and takes complete responsibility for the integrity of the data and the accuracy of the data analysis.

ETHICS STATEMENT

A practical sampling approach was used to select the sample from our target demographic. Thus, the questionnaires were distributed to students at various Bangladeshi universities. Students received information about the purpose of the investigation and guarantees regarding the confidentiality of their answers before completing the survey. To obtain the students' verbal consent, the form starts with two alternative agreement questions (yes/no). A small number of students selected the no option to participate in the survey, and they were free to depart. The survey employed a self-administered questionnaire in addition to online data collection (via a Google form) and in-person interviews. The observational study was permitted by the Noakhali Science and Technology University Ethical Committee under memo number NSTU/SCI/EC/2023/169 and conducted in compliance with ethical standards (as per The Code of Ethics of the World Medical Association). Participants were also informed of the objectives, advantages, and disadvantages of this research, and consent was gained in compliance with regulations.

TRANSPARENCY STATEMENT

The lead author Shohel Mahmud affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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