

Play or Peril? The Dual Nature of Online Gaming for High School Students in China

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Abstract

Online gaming is a prevalent entertainment activity among Chinese high school students, significantly affecting their social lives, health, and academic performance. Although it offers social connection and enjoyment, excessive play may lead to addiction, isolation, reduced physical activity, and poor academic performance. This study explores the motivations behind online gaming addiction among Chinese high school students, and through student surveys examines the relationship between gaming duration, and its affects on students' physical activity, social engagement, sleep quality, and academic outcomes. Additionally, it aims to identify effective initiatives to prevent problematic gaming behaviors and promote harm-reduction strategies.

Keywords

online gaming, addiction, high school students, social interaction, academic performance, physical activity, mental health, China, interventions, harm reduction

1. Introduction

In the past decade, online gaming has grown dramatically, becoming a widespread and frequent daily activity for adolescents. Online games have become an important social activity among adolescents. According to a Chinese Ministry of Culture survey, approximately eight out of ten middle and high school students play online games (Raith et al., 2021). Many teenagers forge and maintain essential peer interaction through online gaming.

Online games are mainly a joint activity for an increasing number of people. For example, Schaefer, Simpkins, Vest, and Price found that activity settings play a key role in adolescents' friendships by supporting existing ties and new friendship-building (Domahidi et al., 2014). Adolescents play games together, maintain social relationships and thus build the possibility of a 'shared life' (Bülow & Felix, 2016). Also, students use gaming to cope with academic stress. The stress students experience in their life could be an important initiator of online games play (Yang & Zhang, 2022). Kaya et al. (2024) argued that unmet psychological basic needs (autonomy, competence, and relatedness) can contribute to online gaming addiction. Meanwhile, in their spare time, pleasure and enjoyment of online game playing could be the important motives that make students stick with it.

While many gamers have positive aspects to video gaming, such as enjoyment, stress relief, friendship, and a sense of community, heavy gaming can harm mental and physical health among students, reducing

their physical activity, sleep quality, and academic performance, as well as social isolation in real life. One of the most serious problems of internet gaming is addiction. According to the 2024 “Statistical Report on Internet Development in China (53rd Edition),” as of December 2023, the number of internet users in China reached 1.092 billion, with an internet penetration rate of 77.5%. Among them, the population suffering from internet addiction primarily consists of adolescents aged 15 to 20. A characteristic of internet usage among Chinese adolescents is their preference for entertainment content, with the usage rate of online games reaching 64.3%, and the usage rate among underage individuals being as high as 67.9% (Wang & Lin, 2024). Several studies showed that those players who were classified as “addicted” or engaged in “problematic game play” experienced significant negative consequences, such as social isolation, increased aggression, and negative academic and occupational impacts (Cui et al., 2018).

Kim et al. found a highly significant negative relationship between online game addiction scores and self-control. This suggests higher addiction correlates with lower self-control (Cui et al., 2018).

This research aims to address the following questions:

1. What are the underlying motivations influencing Chinese high school students' online gaming addiction?
2. What is the association between gaming duration, level of gaming addiction, physical activity, campus social engagement, sleep quality, and academic performance among Chinese high school students?
3. What interventions might be effective in preventing problematic or addictive gaming behaviors among adolescents or promoting harm-reduction strategies to mitigate related negative outcomes?

2. Theoretical Framework

Flow theory: Csikszentmihalyi introduced the original concept of flow theory by defining it as “the holistic experience that people feel when they act with total involvement.” (Csikszentmihalyi, 2014). Flow experience, during which players are said to feel “carried away,” emerges from a mix of pleasure and satisfaction. When players experience flow while playing online games, they filter out irrelevant perceptions and thoughts and focus on the online games. For example, when students play Minecraft, they lose track of time. League of Legends requires quick reaction and strategic thinking, creating strong focus. The theory explains why online gaming is so attractive and leads to addiction.

Cognitive theory on the psychological motivations of adolescents who are addicted to online games. The findings revealed that the addicts exhibited higher intrinsic than extrinsic motivation. (Wan, C., & Chiou, W. (2007). The results imply that intrinsic motivation plays a crucial role in gaming addiction. Results indicated that extrinsic rewards would undermine intrinsic motivation when they were high expectancy, high relevance, tangible, and noncontingent. Thus, players' intrinsic motivation would be higher when extrinsic rewards were low expectancy, low relevance, intangible, and contingent.

3. Methodology

Data Collection. This study employed a quantitative survey design to examine Chinese high school students' online gaming behaviors, needs underlying utilization, potential impacts, and ways to prevent addiction. Participants included students aged 15 to 19 from 11 cities across China, including Beijing, Nanjing, and Qingdao. Data were collected through an online questionnaire on the Wenjuanxing platform.

Data Analysis. Descriptive statistics were first used to summarize the demographic characteristics of the sample and patterns in online gaming habits, motivations, and perceived impacts. Subsequently, a series of variance analyses were conducted to explore associations between gaming duration and its impacts, as well as the relationships between gender, gaming time, and the consequences of online gaming.

Review Inclusion Criteria. For the literature review component, inclusion criteria were as follows: (i) studies presenting quantitative empirical data, (ii) studies focused on online gaming, (iii) publications dated between 2007 and 2025, and (iv) full-text articles available in English.

4. Results

4.1 Demographic Characteristics of High School Students

The present sample included 56 high school students. Table 1 shows the frequency distribution of students' demographic variables.

Table 1: Characteristics of the students involved in the study (N = 56)

Characteristics	n (%)
Gender	Male 39 (70%) Female 17 (30%)
City	Beijing 29 (52%) Nanjing 11 (20%) Qingdao 6 (11%) Lianyungang 4 (7%) Others 4 (7%) Abroad 2 (4%)
Time playing online games	Nighttime in school days 31 (55%) Recess in school days 9 (16%) Daytime in weekend 28 (50%) Nighttime in weekend 48 (86%)
Online game weekly duration	0-5 hours 29 (52%) 6-10 hours 12 (21%) 11 hours above 15 (27%)
Motivation of online gaming	Social 23 (41%) Entertainment and relaxing 54 (96%) Improving skills 17 (30%) Self-fulfillment 9 (16%) Other reasons 3 (5%)
Negative consequences of online gaming	Negative impact on psychological health 1 (2%) Increased anxiety 9 (16%) Negatively affected communication with family members 11 (20%) Reduce quality of life 5 (9%) More anxious in face-to-face social interactions. 4 (7%) Lower academic performance 6 (11%) Exacerbate sleep deprivation 20 (36%)
Reduce in outdoor physical exercise due to online game	No impact 32 (57%) 1-4 hours 17 (30%) 5-8 hours 4 (7%) 8 hours and above 3 (5%)
Reduce in sleeping time due to online game in a week	No impact 23 (41%) 1-4 hours 25 (45%) 5-8 hours 5 (9%) 8 hours and above 3 (5%)
Number of times homework was submitted late in a week	No impact 42 (75%) 1-2 times 8 (14%) 3-4 times 3 (5%) 5 times and above 3 (5%)
Number of days the weekly class engagement was negatively affected	No impact 39 (70%) 1-2 times 12 (21%) 3-4 times 3 (5%)

Among students who limit gaming under 5 hours per week, 66% reported no adverse impact on physical activity, 52% on sleep, 79% on homework submission, and 83% on class engagement. Only 3% experienced serious sleep disruptions, and 6% reported frequent late homework submission (three or more late submissions).

Among students who game 6-10 hours per week, 59% indicate a serious impact on physical exercise (5 hours or more), while 17% report negative effects on sleep (5 hours or more) and class engagement (three or more late submissions).

For those gaming heavily for more than 11 hours per week, 67% report serious impacts on physical exercise (5 hours or more), 33% on sleep (5 hours or more), 47% on homework submission, and 14% on class engagement (three or more late submissions).

Table 2: Associations between online gaming weekly duration and its impacts

Weekly duration of game play	Reduce in outdoor physical exercise due to online game	n (%)	Reduce in sleeping time due to online game in a week	n (%)	Number of times homework was submitted late in a week	n (%)	Number of days the weekly class engagement was negatively affected	n (%)
0-5 hours (29 ppl, 52%)	No impact	19 (66%)	No impact	15 (52%)	No impact	23 (79%)	No impact	24 (83%)
	1-4 hours	10 (34%)	1-4 hours	13 (45%)	1-2 times	4 (14%)	1-2 times	5 (17%)
	5-8 hours	0 (0%)	5-8 hours	1 (3%)	3-4 times	1 (3%)	3-4 times	0 (0%)
	8 hours and above	0 (0%)	8 hours and above	0 (0%)	5 times and above	1 (3%)	5 times and above	0 (0%)
6-10 hours (12 ppl, 21%)	No impact	0 (0%)	No impact	5 (42%)	No impact	4 (33%)	No impact	7 (58%)
	1-4 hours	5 (42%)	1-4 hours	5 (42%)	1-2 times	8 (67%)	1-2 times	3 (25%)
	5-8 hours	2 (17%)	5-8 hours	2 (17%)	3-4 times	0 (0%)	3-4 times	0 (0%)
	8 hours and above	5 (42%)	8 hours and above	0 (0%)	5 times and above	0 (0%)	5 times and above	2 (17%)
11 hours above (15 ppl, 27%)	No impact	0 (0%)	No impact	8 (53%)	No impact	4 (27%)	No impact	12 (80%)
	1-4 hours	5 (33%)	1-4 hours	2 (13%)	1-2 times	4 (27%)	1-2 times	1 (7%)
	5-8 hours	3 (20%)	5-8 hours	2 (13%)	3-4 times	4 (27%)	3-4 times	1 (7%)
	8 hours and above	7 (47%)	8 hours and above	3 (20%)	5 times and above	3 (20%)	5 times and above	1 (7%)

4.3 Associations Between Gender, Gaming Duration, and Its Impacts

The associations between gender, online gaming duration, and its impacts are summarized in Table 3. Among participants, male students play online games for much longer than female students on average. Female students play for 6.2 hours in a week while male students play for 11.1 hours. 77% female students play online games within 5 hours per week, while only 44% male students limit their online gaming time within 5 hours. Also, male students have much high percentage in heavy player. 31% male students play 11 hours or more in weekly while only 12% female students do so.

More male students indicated serious negative impact of online gaming. 15% female students report serious reduction in physical exercise (5 hours and above in a week), 18% in serious reduction in sleeping time (5 hours and above in a week) and 13% in late in homework submission (3 times a week). While the percentages are only 6%, 6% and 6% for female students.

Table 3: Associations between gender, gaming duration, and its impacts

	Weekly duration of game play	n (%)	Reduce in outdoor physical exercise due to online game	n (%)	Reduce in sleeping time due to online game in a week	n (%)	Number of times homework was submitted late in a week	n (%)
Male (39 ppl)	0-5 hours	17 (44%)	No impact	22 (56%)	No impact	17 (44%)	No impact	28 (72%)
	6-10 hours	9 (23%)	1-4 hours	11 (28%)	1-4 hours	15 (38%)	1-2 times	6 (15%)

	11 hours and above	12 (31%)	5 hours and above	6 (15%)	5 hours and above	7 (18%)	3-4 times	5 (13%)
Female (17 ppl)	0-5 hours	12 (71%)	No impact	10 (59%)	No impact	6 (35%)	No impact	14 (82%)
	6-10 hours	3 (18%)	1-4 hours	6 (35%)	1-4 hours	10 (59%)	1-2 times	2 (12%)
	11 hours and above	2 (12%)	5 hours and above	1 (6%)	5 hours and above	1 (6%)	3-4 times	1 (6%)

5. Discussion

In this study, we found that online gaming is a major entertainment for Chinese high school students. They play 9.6 hours on a weekly basis. In addition to entertainment, some students also play online games for social and skills improvement.

If online game duration is limited in a reasonable level per week, say within 5 hours, online gaming show little negative impact on students' physical exercise time, sleeping time, homework submission and class engagement. However, for heavy online game players (11 hours and above per week), the negative impact of online gaming on students' exercise and sleeping time, and school performance has been obvious.

Based on the survey, female students spend significantly less time gaming than male students, and report experiencing a much less negative impact on their daily lives and academic studies. Most heavy online gamers are male students, which is strongly correlated with reduced sleep time, decreased physical activity, and poorer performance in class and homework submissions.

Many students reported experiencing some level of gaming addiction. However, most of them manage their gaming time through self-control and seek support from friends to help distract them from gaming.

5.1 Implications for High School Students

Online gaming has the potential to enhance life satisfaction. The formation of social capital and sense of belonging to virtual gaming communities shapes adolescents' experiences (Pang et al., 2025). However, we recommend healthy gaming habits, controlling the duration of online gaming to a reasonable level, say below 5 hours per week, which would bring minimal adverse impact on their health and academic studies.

We would suggest setting up youth mode on phones, iPads, and computers to control screen time during school nights and weekends, reducing the risk of excessive gaming and protecting students' physical and mental health.

Meanwhile, study findings indicated that responsibility and meaning in life had a serial mediating effect in the relationship between basic psychological needs and online gaming addiction. Families and friends' interventions to satisfy the basic psychological needs of adolescents may help prevent online gaming addiction (Kaya et al., 2024).

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Conflicts of Interest

The authors declare no conflict of interest.

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