Gaming Gluttony:

Bringing Internet and Gaming Issues to the Forefront in China

The Emory Global Health Institute Student Advisory Committee

Case Writing Team: Rima Pai (Case Writing Chair), Nneka Molokwu, Anirudh Shreedhar, and Anupama Tadanki

Faculty Advisor: Robert Bednarczyk, PhD

EMORY UNIVERSITY

Emory Global Health Institute

All characters described within the case are *fictional* and bear no direct reflection on existing organizations or individuals. The case background and history, however, are meant to portray an accurate representation of the gaming industry and internet usage in China. The case scenario is complex and does not necessarily have a correct or perfect solution, and thus encourages a judicious balance of creative yet perceptive approaches. The authors have provided informative facts and figures within the case and appendices to help teams. The data provided are derived from independent sources, may have been adapted for use in this case, and are clearly cited such that teams can verify or contest the findings within their recommendations if it is pertinent to do so. Teams are responsible for justifying the accuracy and validity of all data and calculations that they use in their presentations, as well as defending their assertions in front of a panel of knowledgeable judges representing different stakeholders.

Introduction

The Situation

Zhang Wei was an 18-year-old student at an elite university in Hangzhou city in China. Zhang was also a popular gamer with 10 million online followers. He was being vetted to join the Royal Never Give Up Gaming Club in a premier Esports league to begin his career as an Esports professional. During one of his live stream gaming marathons, Zhang suddenly developed shortness of breath and started sweating excessively. He then clutched his chest and passed out. He was rushed to the hospital and was diagnosed with a pulmonary embolism caused by a deep vein thrombosis (blood clot formed in deep veins that can travel to another area of the body, often the lung). Zhang had been diagnosed for almost a year before his hospitalization with obesity, clinical depression, and anxiety. He had recently dropped out of university due to failing grades. However, he continued to game for days at a time, with very little social interaction. The doctors believe the deep vein thrombosis was caused by prolonged periods of sitting while playing video games. His parents overlooked the need for treatment of his conditions, saying that he was a normal teen. Zhang's tragic live-streamed collapse gained national attention, prompting the Chinese Ministry of Health (MoH) National Health and Family Planning Commission (NHFPC) to summon subject matter experts to address the country's widespread gaming addiction.

Prompt for Teams

The MoH has requested multidisciplinary case competition teams to develop the best strategy to address internet and gaming disorder among university students in Hangzhou city. Each team will need to develop a 12-month pilot program with proof of concept, anticipated outcomes and predefined measures of success using a 1.5 million Chinese Yuan budget (approximately $218,000 USD; addition budget notes are at the end of the document) that addresses gaming disorder for one university in Hangzhou. You will need to prioritize and justify all the decisions that you make toward reaching this goal, and you must explain all the aspects involved in your choices. You will also need to be cognizant of different groups affected by your policy, program, or chosen intervention including the funders and stakeholders while forming strategies and decisions. Lastly, teams will need to provide a short description of how they expect to scale this program over the next five years if the pilot is successful.

Internet Gaming Disorder as a Global Health Problem

Internet and gaming related issues are of new public health concern, especially in the Asia-Pacific region.[1] Research into addictive technological behaviors has increased in the last decade. Many of these studies have demonstrated associations between addictive use of technology and psychiatric disorders.[2] Internet gaming disorder has been defined by the American Psychiatric Association (APA) as "persistent and recurrent use of the internet to engage in games, often with other players, leading to clinically significant impairment or distress."[3] In response, leading health organizations like the APA and the World Health Organization have described and characterized internet gaming disorder to guide research into this important public health issue.[4,5] The International Classification of Diseases (ICD) -11 defines internet gaming disorder as "a pattern of gaming behavior ("digital-gaming" or "video-gaming") characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences."[6] American Academy of Pediatrics guidelines indicates that children under five should get no more than one hour of screen time per day including apps, with preferably less than one hour of screen time, while children under one year of age should get no screen time."[7]

Health Effects of Excessive Gaming

Excessive video gaming is associated with reduced sleep, insomnia, limited leisure time, attention problems, poor academic performance, anxiety, depression, seizures, malnutrition, dehydration, pressure sores, deep vein thrombosis, family conflicts, lower self-esteem, low satisfaction with daily life, and youth violence and crime.[4,8, 9] Factors that contribute to compulsive gaming include ease of access, disinhibition, content stimulation, dissociation most significantly time distortion, perceived anonymity, and reward pathway stimulation.[10] Brain regions implicated in gaming disorders are like the ones implicated in substance use disorders, gambling disorders, and other disorders of addiction. [4,11] Other risk factors associated with internet gaming disorder are genetic influences, trauma, abuse, family disruption in early life, social phobia, attention deficit hyperactive disorder, autism spectrum disorder, depression, high impulsivity, or breakdown of the parental relationship.[4]

The prevalence of gaming disorders is higher among males than females.[4] According to a national survey in China, the prevalence of internet gaming disorder is 4.3% among young adults and adults (> 18 years) and about 3.6% among children and adolescents.[12] Another study places the prevalence of internet gaming disorder among Chinese youth at 10%.[4] Many countries have developed programs to address the clinical, social, and personal impact of gaming disorders. For example, Hong Kong's Department of Public

Health developed a collaborative program to address internet addiction, including internet gaming addiction. In other countries, the response has been lacking, with health professionals continuing to lobby governments for comprehensive action.[4]

Clinicians across different countries have tried to establish treatment plans for gaming disorders. Treatment approaches to gaming disorder have not yet been standardized.[13] Treatment options that have been explored for gaming disorders such as pharmacotherapy, cognitive behavioral therapy, family therapy, electroacupuncture, motivational interviewing (to increase motivation for abstinence), psychoeducation, neurobiological education, management of comorbid psychological conditions, blocking, monitoring, & filtering specific triggers of addiction, and home-based daily journaling intervention.[13,14,15]

Studies among emerging young adult gamers have found that problematic patterns of online gaming are a proxy for broader patterns of stress and distress such as loneliness.[29] Gamers use the "addiction" frame to communicate their passion and commitment to online play, even furthering their passion for the activity and community. It is also a way for players to express and even resolve life distress such as depression and loneliness.[29] Collaborative gameplay in online games has been found to promote offline social connections through simulations of collective activities.[42] Online games appear to function as 'third places' (i.e. apart from home and the workplace/school) for practicing informal sociability and establishing social ties with strangers and making new friends.[43]

China's Gaming Industry and Youth

A $32.5 billion industry that continues to accelerate in growth, Esports is serious business all over the world – and nowhere else is it more so than in China.[16] With high stakes on the line, big-time investors sponsor club teams and pay salaries to have gamers train full time and compete in international tournaments. They are hosted in Olympic arenas, with ardent fans thronging from the world over and millions of dollars in prize money up for grabs. The sub-culture boasts its big-time celebrities, cosplayers (who build and dress in-game character costumes professionally) and fan clubs.[17] Industry giants include games such as World of Warcraft – a hugely popular multiplayer online role-playing game which has created a professional gaming culture with its mythology, folklore, in-game culture, and power dynamics between players.[18] Players have been seen to be so highly invested that they create hybrid realities for themselves – a melding of their digital and physical worlds with tech accessories, software plugins, and sets of principles adopted from the game that they often think about in and apply to real-life.[17]

Problematic gaming patterns have been seen in both dedicated Esports gamers as well as in more pedestrian mobile gamers.[17] In China, they have generally been considered internet addicts or problem cases by older generations in a society that expects discipline and "conventional" success. This clash between the generations is fueled by the rhetoric employed by Chinese media implicating westernization and moral corruption through gaming as detrimental to the establishment of a "civilized" but uniquely Chinese modern state.[44] While a majority of parents still hesitate to support their children's careers in

Esports, the broader social perception of Esports has been gradually changing thanks to tournament victories and international media attention. The youth look to the genuinely feasible careers that have opened up in competitive gaming.[46] Premier gaming league clubs recruit skilled gamers to live and train in well-appointed facilities with their every need catered to and dedicated coaches to help sharpen their skills – all towards entering multimillion-dollar gaming leagues for which China has become the undoubted capital of the world.[45] Chinese gamers are more 'Completionist' (i.e., prone to extended spurts of gameplay of one title with a higher commitment to completing the game course, often at a high cost to their own well-being) and more driven by competition than their US counterparts.[18] The cut-throat competition is ever-present, but on the other side is fame, glory, and opportunities for the very young to become millionaires overnight.

China's Economics and Technological Advancement

Within a few short years, China's rapid growth in the global gaming market positioned it as an industry leader. From 15% of the market share in 2012 to 27% in 2016, China had nearly doubled its impact within four years (See Exhibit 1).[19] Total video game revenue is projected to increase from $17.835B in 2017 to approximately $23B in 2023. Within the Chinese market, the largest player is Tencent, which, as of 2017 had over 51% of market share. Mobile gaming, compared with PC web and PC client games, proved to be most popular in the country, accounting for over two-thirds of all gaming and 66.8% of industry revenue (as of 2018). As of May 2016, the top three iOS and Android carriers were China Mobile, China Unicorn, and China Telecom. As of 2017, 53.37% of gamers in China were 19-24-year-olds, 30.05% were 25-30, 18% were 18 and below, and 28% were over 30.[20] China experienced explosive growth in the number of gamers in the early years of the millennium, but growth has dramatically declined since then. This was likely due to the country approaching the point of saturation for several gamers. The rapid growth itself happened despite three challenges: the high cost of games and low willingness to pay premium prices within the Chinese market, high piracy rates, and industry-government regulations including a ban on the sales of consoles.[21] However, with time came cost efficiencies, increased access to broadband, and supportive government policy to develop the country's gaming industry. Exponential growth quickly followed. Between 2014 and 2019, there was a 7.59% compound annual growth rate in China's marketing and advertising spending on video games. [22]

Culture Around Mental Health in China

Attitudes of many toward mental health in China are influenced by deeply held cultural values such as filial piety: the reverence for parents considered in Chinese ethics to be the prime virtue and basis of all proper human relations.[23] There is a widespread stigma associated with mental health issues that are driven by both cultural and structural factors: The fear of sabotaging the family reputation is a major driver of decisions – influencing how an individual voices concerns and whether they choose to seek help. With value placed on self-restraint, individuals are expected to control and suppress their emotions, to place little importance on them.[24,25] The expectation of openly discussing personal issues in any counseling context may be unnatural to many. [23]

Insufficient mental health resources and service capacity of mental health services[26] is the second major factor that leads to people who suffer from mental illness being kept at home to avoid stigma, further compounding their isolation. Relatively poor mental health literacy in the general public [27] also contributes to high levels of association stigma affecting employment, romantic relationships, and friendships, since people are more likely to regard mental health problems as personal problems that need to be dealt with independently. Even within the context of healthcare facilities, psychiatrists and psychiatric nurses experience barriers in administering appropriate care due to high levels of negative attitudes that affect individuals' trust and their perceived efficacy of treatment.[28] Professional help-seeking in cases of mental health problems has been depicted more frequently in Chinese media (TV drama, film, etc.) in the last few years - this could be associated with greater openness in the population regarding psychiatric care-seeking during the same time period.[28]

Mental Healthcare Costs in China

The Mental Health Law (MHL) that passed in May 2013 covered many different aspects of mental health care, but most notably provided the legal foundation for protecting patients' rights and improving services. Even before MHL, the Chinese government established the "686 Programme" nearly a decade earlier in 2004, to integrate hospital and community services for patients with serious mental illness.[30] The initiative received its name for the 6.86 million Chinese Yuan (~$994,000 USD) that was committed to the program by the government. Soon after, the Chinese government promised to increase its mental health budget to up to 8% of the total national health budget by 2015 (among other countries with funds dedicated to mental health, the typical commitment was no more than 1% of their overall health budgets). Initial activities seemed promising, with central government funding increasing by 466.53 million Chinese Yuan (~$67.7 million USD) between 2005 and 2014. Funding from China's local governments for the program increased by 102.98 million yuan (~$15 million USD) over the same period.[30] In spite of having the MHL, it does not specify a planned budget that the government has allocated for implementation of mental health care services, and this creates an imbalance of economic environment of China and hampers the progress within the healthcare system leading to lack of development of sustainable programs that look at integrated mental healthcare.[30]

Mental Healthcare Policies in China

In China, the primary responsibility of delivering healthcare and supervising providers in hospitals is mainly conducted by the NHFPC and the local Health and Family Planning Commissions. Mental healthcare, including diagnosis, treatment, and rehabilitation services, are provided by psychiatric departments at tertiary hospitals for severe mental health conditions, and mild illness is usually treated at home or in the community. Both inpatient and outpatient mental health services are covered by insurance at lower copayment rates. In 2014, 34 million patients with mental health conditions visited psychiatric hospitals, and on average, one psychiatrist treats 4.8 patients per day.

One of the challenges that China faces is the lack of integration of mental healthcare within primary care. The China National Mental Health Working Plan (2015–2020) reset the goals so that by 2020, 70% of the urban general population, 50% of the rural general population, and 80% of students would be aware of the characteristics and prevention of mental disorders.[38] To achieve this goal, the MoH has taken a series of actions in the past decade to strengthen the dissemination of mental health information to the public; however, its effectiveness is yet to be seen.[39]

Internet Accessibility and Gaming Policies

China is one of the few countries that has tried to develop regulations to prevent or reduce online gaming addiction. Censorship for online gaming was created by its Ministry of Culture (MoC) and General Administration of Press and Publication (GAPP) in 2007 jointly with the Online Game Anti-Addiction System (OGAAS). The OGAAS aims to curb online addiction.[31] Under this system, all online gaming developers require monitoring of the user's playtime. This involves firstly having playtime censorship and secondly identification (ID) checking. [31,32] All minors under the age of 18 years are restricted from gaming for more than three hours a day, and if a minor attempts to play more than three hours, then the service provider is required to limit their ability to continue playing, either by turning off in-game reward mechanisms or stopping play. Prior attempts to prevent obsessive users from using their parent's ID or other people's ID have failed as obsessive users can find ways to get around login and time limit restrictions by switching accounts or switching among different online games in a day to bypass time limit restrictions. The WHO based age-restricted guidelines need to be implemented with greater involvement of stakeholders including schools and parents.[6] In 2007, the Chinese government embedded anti-addiction mechanisms restricting gaming software to curtail excessive play by children. This directed game developers to create a "game fatigue system" that would incentivize young gamers to spend less time playing games.[32]

The OGAAS appears to have had some positive effects. According to a national survey by the China Youth Social Service Center, the number of Chinese online game players under the age of 18 years declined to 15% by 2008—a 7% drop from 2007's figure of 183 million. However, there are still many obstacles to fully implementing this system due to failure among service providers to install an anti-addiction online system. In March 2010, China's MoC announced the "Online Games Temporary Regulations," which took effect on August 1, 2010. [31]This regulation was designed to be a set of comprehensive rules that regulated online games to not include graphics that showcase gambling, superstitions or cult behavior, pornography, or violence. [31,32]

New measures to limit the screen time among children took effect in China in November 2019. Children under the age of 18 are banned from playing online games between 10:00 pm and 8:00 am and restricted to 90 minutes of playing time on weekdays and extended on weekends and public holidays for an extra three hours. Limitations will be imposed on minors who spend on online gaming as well. Gamers aged between eight and 16 will be allowed to add a maximum of 200 Chinese Yuan (~$29 USD) per month to their gaming

accounts, while those aged between 16 and 18 will be restricted to 400 Chinese Yuan (~$58 USD) per month.

Short video apps have been a raging phenomenon in China. Over 650 million people watch all kinds of funny videos to other informational news. China is developing regulations to cap the amount of time spent on short-video apps. From June 2019, all such apps will have to install a "youth mode" feature for parents that can limit what children watch and for how long they can watch. The special mode will include limits on contacts and services that children can access and once in "youth mode," children won't be able to access the app between 10 pm to 6 am. Some other restrictions have been extended towards depositing money via online platforms or live streaming to their followers. In summary, although online game regulations have been developed and implemented, their effectiveness is questionable because of the lack of effective measures and gaps within the enforcement system.[33]

China and Hangzhou at a Glance

- September 2019 Population Estimate: 1.43 billion - Geographical Area: 9.6 square kilometers (5th largest country by area) - Religious Composition: 52.2% unaffiliated, 21.9% folk religion, 18.2% Buddhist, 5.1% Christian. In 2019, GDP based on PPP for China was 27,308.86 billion international dollars. It has also been one of the fastest-growing economies in the world, with real growth rates slightly below 7% in each of the last three years.[34]

- China's Higher Education System

Most Chinese universities are publicly funded. In 2018, China's public spending on education exceeded three trillion Chinese Yuan (~$435 billion USD), while the number of universities increased significantly in the last decade, most recently standing at 2,663.[40,41] Around 28.3 million students were enrolled in universities in China in 2018. [36,37] Higher education spending represents about a quarter of the overall education budget. While most universities in China are still publicly owned and operated, there has been a steady rise in privately funded universities since the late 1990s.[36,37] The federal government plays a major role in all universities' operations, curricula, and other aspects by mandating each university regardless of funding to have a committee representing their interests. Technological universities in Hangzhou have been consistently ranked among the top 10 in the country and are major recruiting grounds for giants in the information technology and gaming industries. [36,37] Plans to develop and modernize the national higher education system are among the latest policy trends of the Chinese government. These reforms have mainly been in the form of scholarships, liberalization of curricula and private funding structures, and increased autonomy for public universities to build programs in new disciplines according to job market trends. [36,37](see Exhibit 2).

- Hangzhou city

Hangzhou, the capital of the Zhejiang Province in East China, is a large city that has a population of 9.02 million as of 2015 with 1.12 million under the age of 18 and 4.59 million between the ages of 18 and 60. [35] With 39 universities in the city, about 18.9% of the population is university-educated- most specialized in certain disciplines/areas of study such as agriculture, medicine, technology, the arts, education, communications, etc. Several other smaller colleges focused on vocational training are also located in Hangzhou. These campuses host nearly 200,000 students – a sector of the city's population that grows every year. With 10,000 aspiring Esports professionals and 1 billion-yuan (~$140 million USD) in tax revenues, Hangzhou plans to build 14 Esports facilities before 2022 following a 2 billion Chinese Yuan (~$290 million USD) investment. The city opened an "Esports town" in 2018 with plans to add an Esports academy, hotel, and hospital in the next five years. Further, Hangzhou will host the 2022 Asian Games, where Esports may be included for the first time as a medal sport.[35]

Summary

The objective of each team is to provide a clear and justifiable mental health program to address the issue of internet gaming. Your program proposal must focus on a 12-month pilot program with clearly defined proof of concept, outcomes, measures of success and timeline. The pilot program should include strategies to address students who are currently affected, and ways to mitigate further exacerbation of the problem. Since university officials recognize the possibility of students pursuing viable and lucrative careers in gaming, a blanket ban on gaming is not a viable option. The MoH is willing to provide 1.5 million Chinese Yuan (~$218,000 USD) for a one-year pilot program that can be rolled out in one university in Hangzhou city. Also describe how the results achieved within your pilot program will be scaled up nationally for ten universities, including a 5-year timeline with the funding and budget rationale given below. Make sure milestones within the 5-year timeline are well-defined and that universities and regional parameters are considered in order to maintain sustainability beyond the 5-year period.

Budget Rationale

Higher education spending represents about a quarter of the overall education budget.[33] With 2,633 universities in China in 2018[41], each institution's budget averaged around 300 million Chinese Yuan (~$44 million USD). The Chinese government is willing to mandate higher education institutions to spend 0.5% of their budgets annually over the next five years on an innovative university-based mental health program focused on gamers if a successful pilot program proposed by your team provides proof of concept and scalability. The pilot program must be executed using only 10% of the expected budget available for the first year of the program, or 1.5 million Chinese Yuan per institution. The scaled-up program will allow for 15 million Chinese Yuan (~$2.1 million USD) per institution per year, or 150 million Chinese Yuan (~$22 million USD) in total annual funding.

References

1. Addiction to Internet Use, Online Gaming, and Online Social Networking Among Young Adults in China, Singapore, and the United States—Catherine So-Kum Tang, Yee Woen Koh, YiQun Gan, 2017. (n.d.). Retrieved October 22, 2019, from https://journals-sagepub-com.proxy.library.emory.edu/doi/full/10.1177/1010539517739558?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed

2. The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. - PsycNET. (n.d.). Retrieved October 22, 2019, from https://psycnet-apa-org.proxy.library.emory.edu/record/2016-13379-006

3. Internet Gaming Disorder in Children and Adolescents | American Academy of Pediatrics. (n.d.).Retrieved from https://pediatrics-aappublications-org.proxy.library.emory.edu/content/140/Supplement_2/S81.long

4. Saunders et al. (2017). Gaming disorder: Its delineation as an important condition for diagnosis, management, and prevention. J Behav. Addict, 6(3): 271-279. https://www.ncbi.nlm.nih.gov/pubmed/28816494

5. Gentile et al. (2017). Internet Gaming Disorder in Children and Adolescents. Pediatrics. 40(2): S81-S85. https://www.ncbi.nlm.nih.gov/pubmed/29093038

6. World Health Organization. (2018). Gaming Disorder. https://www.who.int/features/qa/gaming-disorder/en/

7. Media Use in Children and Adolescents | American Academy of Pediatrics. (n.d.). Retrieved from https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/American-Academy-of-Pediatrics-Announces-New-Recommendations-for-Childrens-Media-Use.aspx

8. Wang et al. (2014). Prevalence and correlates of video and internet gaming addiction among Hong Kong adolescents: a pilot study. Scientific World Journal. Epub. https://www.ncbi.nlm.nih.gov/pubmed/25032242

9. Lam. (2014). Internet gaming addiction, problematic use of the internet, and sleep problems: a systematic review. Cur Psychiatr Rep. 16(4):444 https://www.ncbi.nlm.nih.gov/pubmed/24619594

10. Greenfield. (2018). Treatment Considerations in Internet and Video Game Addiction: A Qualitative Discussion. Child Adolesc Psychiatr Clin N Am. 27(2): 327-344. https://www.ncbi.nlm.nih.gov/pubmed/29502754

11. Wei et al. (2017). A Tripartite Neurocognitive Model of Internet Gaming Disorder. Front Psychiatr. https://www.frontiersin.org/articles/10.3389/fpsyt.2017.00285/full

12. Liu et al. (2017). Autistic traits and internet gaming addiction in Chinese children: The mediating effect of emotion regulation and school connectedness. Res Dev Disabil. Epub.

13. Greenfield, D. N. (2018). Treatment Considerations in Internet and Video Game Addiction. Child and Adolescent Psychiatric Clinics of North America, 27(2), 327–344. https://doi.org/10.1016/j.chc.2017.11.007

14. Zajak et al. (2017). Treatments for Internet gaming disorder and Internet addiction: A systematic review. Psychol. Addict. Behav. 31(8): 979-994. https://www.ncbi.nlm.nih.gov/pubmed/28921996

15. Gaming disorder: Its delineation as an important condition for diagnosis, management, and prevention. (n.d.). Retrieved from https://www-ncbi-nlm-nih-gov.proxy.library.emory.edu/pmc/articles/PMC5700714/

16. Ramirez, E. (2018, May 18). China's $32.5B Gaming Market Is Driving Mobile Esports To New Heights. Retrieved from https://www.forbes.com/sites/elaineramirez/2018/05/16/chinas-32-5b-gaming-market-is-driving-mobile-esports-to-new-heights/#62a16a656362

17. Lindtner, S., Nardi, B., Wang, Y., Mainwaring, S., Jing, H., & Liang, W. (2008). A hybrid cultural ecology: World of warcraft in China. Proceedings of the ACM 2008 Conference on Computer Supported Cooperative Work - CSCW '08, 371. https://doi.org/10.1145/1460563.1460624

18. Yee, N., Nick, Nick, Haskell, C., Yee, N., Jeff, Chinese Gamers are More Competitive and Completionist, More Homogeneous in Gaming Motivations Than US Gamers. Retrieved from https://quanticfoundry.com/2018/11/27/gamers-china-us/

19. iResearch. (April 27, 2017). Share of the Chinese gaming industry in the global gaming market from 2012 to 2016 [Graph]. In Statista. Retrieved November 11, 2019, from https://www-statista-com.proxy.library.emory.edu/statistics/759541/china-gaming-industry-market-size-share-in-the-world/

20. iResearch. (October 18, 2017). Distribution of viewers of game video streaming platforms in China in 2017, by age group [Graph]. In Statista. Retrieved November 11, 2019, from https://www-statista-com.proxy.library.emory.edu/statistics/868891/age-group-distribution-of-game-video-streaming-platform-users-in-china/

21. Kshetri, Nir. (2010). The Evolution of the Chinese Online Gaming Industry. Journal of Technology Management in China. 4. 10.1108/17468770910965019.

22. PwC, & Website (chinadaily.com.cn). (September 15, 2015). Compound annual growth

rate of China's media and entertainment spending between 2014 and 2019, by sector [Graph]. In Statista. Retrieved November 11, 2019, from https://www-statista-com.proxy.library.emory.edu/statistics/272902/growth-of-chinese-media-and-entertainment-spending/

23. Golub, A., & Lingley, K. (2008). "Just Like the Qing Empire." Games and Culture, 3(1), 59–75. doi: 10.1177/1555412007309526

24. Tracey, Terence J.,Leong, Frederick T.,Glidden, Cynthia (1986) Help seeking and problem perception among Asian Americans. Journal of Counseling Psychology, Vol 33(3), Jul 1986, 331-336

25. Mallinckrodt, B., Shigeoka, S., & Suzuki, L. A. (2005). Asian and Pacific Island American students' acculturation and etiology beliefs about typical counseling presenting problems. Cultural Diversity and Ethnic Minority Psychology, 11(3), 227–238. https://doi-org.proxy.library.emory.edu/10.1037/1099-9809.11.3.227

26. Que, J., et al. (2019). "Development and challenges of mental health in China." Gen Psychiatr 32(1): e100053.

27. Wong, D. F. K., et al. (2017). "Comparing the mental health literacy of Chinese people in Australia, China, Hong Kong and Taiwan: Implications for mental health promotion." Psychiatry Res 256: 258-266.

28. Mental Health-Related Stigma in China: Issues in Mental Health Nursing: Vol 39, No 2. (n.d.). Retrieved from https://www-tandfonline-com.proxy.library.emory.edu/doi/full/10.1080/01612840.2017.1368749

29. Snodgrass, J. G., et al. (2018). "Social genomics of healthy and disordered internet gaming." Am J Hum Biol 30(5): e23146.

30. Ma H. Integration of hospital and community services—the '686 Project'—is a crucial component in the reform of China's mental health services. Shanghai Arch Psychiatry. 2012;24(3):172–174.Retrieved from https://www-ncbi-nlm-nih-gov.proxy.library.emory.edu/pmc/articles/PMC4198849/?report=reader

31. Snyder, M. (n.d.). China's Digital Game Sector. 31. https://www.uscc.gov/sites/default/files/Research/China%27s%20Digital%20Game%20Sector.pdf

32. Zhan, J. D., & Chan, H. C. (2012). Government Regulation of Online Game Addiction. Communications of the Association for Information Systems, 30. https://doi.org/10.17705/1CAIS.03013

33. Resolutely curb addiction and protect the healthy growth of young people——A person in charge of the State Administration of Press and Publication answered a reporter's question on the "Notice on Preventing Minors from Addicting to Online Games". Retrieved

from http://www.xinhuanet.com/english/2018-05/08/c_137164238.htm

34. "The World Factbook: China." Central Intelligence Agency https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html.

35. Hangzhou City. Retrieved from http://eng.hangzhou.gov.cn/

36. Higher Education in China: Complement or Competition to Us Universities? Retrieved from https://core.ac.uk/download/pdf/6766850.pdf

37. China: number of universities 2018. Retrieved December 14, 2019, from https://www.statista.com/statistics/226982/number-of-universities-in-china

38. Translated and annotated version of the 2015-2020 National Mental Health Work Plan of the People's Republic of China. Retrieved from https://www-ncbi-nlm-nih-gov.proxy.library.emory.edu/pmc/articles/PMC4984605/

39. Liang, D., Mays, V. M., & Hwang, W.-C. (2018). Integrated mental health services in China: Challenges and planning for the future. Health Policy and Planning, 33(1), 107–122. https://doi.org/10.1093/heapol/czx137

40. Ministry of Finance of the People's Republic of China. (January 23, 2019). Public expenditure on education in China from 2011 to 2018 (in billion yuan) [Graph]. InStatista. Retrieved November 18, 2019, from https://www-statista-com.proxy.library.emory.edu/statistics/455492/china-public-expenditure-on-education/7https://www.chinadaily.com.cn/cndy/2018-05/10/content_36172372.htm8http://www.xinhuanet.com/english/2018-05/08/c_137164238.htm9

41. National Bureau of Statistics of China. (October 22, 2019). Number of universities in China between 2008 and 2018 [Graph]. InStatista. Retrieved December 18, 2019, from https://www-statista-com.proxy.library.emory.edu/statistics/226982/number-of-universities-in-china/

42. Nardi, B. (2006). Collaborative Play in World of Warcraft. 2006 Fourth Latin American Web Congress, 3–3. https://doi.org/10.1109/LA-WEB.2006.

43. Wei, L., Zhang, S., Turel, O., Bechara, A., & He, Q. (2017). A Tripartite Neurocognitive Model of Internet Gaming Disorder. Frontiers in Psychiatry, 8, 285. https://doi.org/10.3389/fpsyt.2017.00285

44. Szablewicz, M. (2010). The ill effects of "opium for the spirit": A critical cultural analysis of China's Internet addiction moral panic. Chinese Journal of Communication, 3(4), 453–470. https://doi.org/10.1080/17544750.2010.516579

45. Afp. (2018, February 23). In China's eSport schools' students learn it pays to play. Retrieved from https://www.dailymail.co.uk/news/article-5425149/In-Chinas-eSport-

schools-students-learn-pays-play.html

46. Liu, L. (2016, August 26). China Rules E-Sports. Retrieved from https://foreignpolicy.com/2016/08/26/china-rules-e-sports-ti6-dota2-what-that-means-for-future-e-sports-market/

Exhibits

Share of the Chinese gaming industry in the global gaming market from 2012 to 2016

Share of Chinese gaming industry in the global gaming market 2012-2016
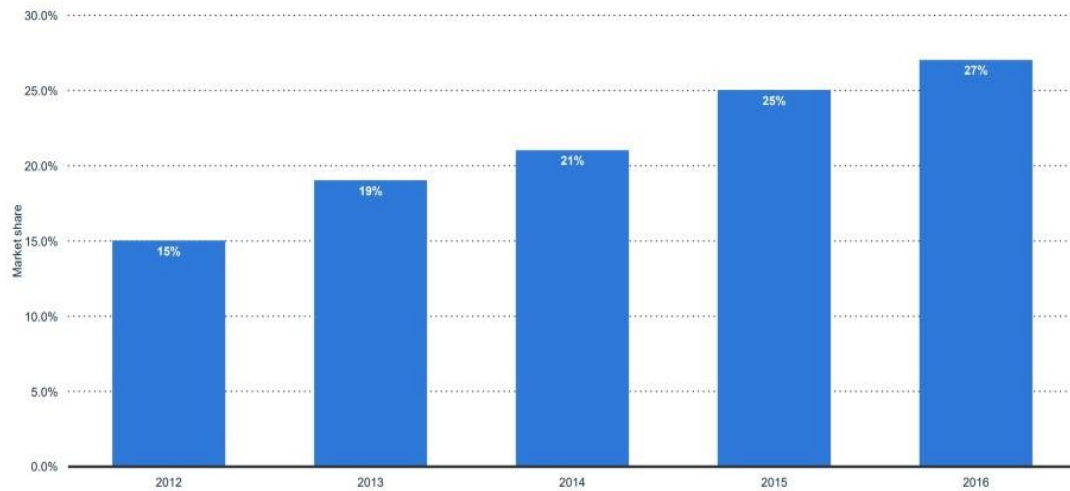
Note: China; 2012 to 2016
Further information regarding this statistic can be found on page 34.
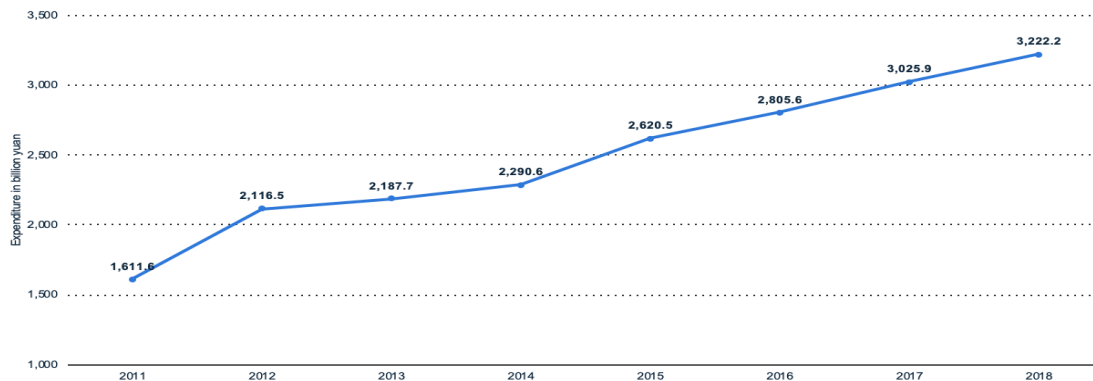Source(s): iResearch; ID 759541

Industry Overview

Exhibit 1: China's growing market share in the gaming industry

Public expenditure on education in China from 2011 to 2018 (in billion yuan)

Public expenditure on education in China 2011-2018

Note: China; 2011 to 2018
Further information regarding this statistic can be found on page 6.
Source(s): Ministry of Finance of the People's Republic of China; ID 455492

Exhibit 2: Public expenditure on education in China from 2011 to 2018 (in billion yuan)

Appendix

Diagnostic Criteria for Gaming Disorder	
DSM 5 Criteria for Internet Gaming Disorder	a) Preoccupation with games b) Withdrawal symptoms when games are taken away c) Tolerance – the need to spend increasing amounts of time playing video games d) Unsuccessful attempts to control participation in playing video games e) Loss of interest in real life relationships and previous hobbies f) Deception of family members, therapists regarding the amount of gaming g) Use of video games to relieve negative moods h) Jeopardized significant relationships, career, etc. because of participation in internet gaming *Link:* *(https://pediatrics.aappublications.org/content/140/Supplement_2/S81.long)*
ICD-11 **Gaming Disorder – 6C51.0 Predominantly online**	Gaming disorder, predominantly online is characterized by a pattern of persistent or recurrent gaming behavior ('digital gaming' or 'video-gaming') that is primarily conducted over the internet and is manifested by: impaired control over gaming (e.g., onset, frequency, intensity, duration, termination, context); increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and continuation or escalation of gaming despite the occurrence of negative consequences. The behavior pattern is of enough severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. The pattern of gaming behavior may be continuous or episodic and recurrent. The gaming behavior and other features are normally evident over a period of at least 12 months for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe.

Impact of Gaming Disorder	
Neurological and Psychological	Reduced sleep Insomnia Attention problems Anxiety Depression Seizures Low self-esteem Low satisfaction with daily life
Social	Limited Leisure time Family conflicts Violence and crime
Educational	Poor academic performance
Health (other)	Malnutrition Dehydration Pressure sores Deep vein thrombosis (blood clots associated with sitting for too long)

(Risk) Factors that contribute to Gaming Disorder	
Biological	Genetics Reward pathway stimulation
Social	Family disruption in early life Breakdown of parental relationship
Psychological	Social phobia ADHD Autism Depression High impulsivity Trauma and abuse Disinhibition Dissociation (time distortion) Perceived anonymity
Other	Ease of access Content stimulation

Treatment Categories	
Pharmacotherapy	Use of medication e.g. Antidepressants, anti-anxiety meds, antipsychotics
Psychotherapy	Cognitive Behavioral Therapy Family Therapy Counseling Motivational Interviewing Daily Journaling
Electroacupuncture	A type of acupuncture that involves passing electric current between needles
Education	Psychoeducation Neurobiological education *Usually involves educating children and families on impact of addictive disorders*
Clinical	Management of co-morbid conditions e.g ADHD, Autism
Combination	Using one or more treatment methods at a time