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ABSTRACT

While many individuals consider gaming as a diversion and a barrier to personal growth, the current research provides a fresh outlook on gaming behaviors. The study, which utilizes descriptive and correlational designs, investigates the motivational basis of gaming behavior among 246 adolescent gamers from a Junior and Senior High School Department in the City of Ilagan, Isabela. The study uses standardized tests to measure and compare the respondents' gaming behavior and motivation and analyzes the data through various statistical methods. The results show that the participants' gaming behaviors are mainly motivated by the domains of Recreation, Skill Development, and Coping. However, the study also reveals that excessive and problematic gaming can negatively affect academic performance, cognitive capacities, social and emotional development, self-esteem, interpersonal relationships, and prosocial conduct. The study recommends that educators and game designers should consider the pros and cons of various gaming motives and integrate them into balanced learning experiences that promote cognitive, affective, and social growth. The study also highlights the importance of monitoring and moderating gaming behavior in educational settings to ensure healthy and balanced learning outcomes.

Keywords: Behavior, Gaming motives, Gaming Online gaming

INTRODUCTION

Researchers in recent years have investigated different facets of the online gaming phenomena; this was caused partly by the need to produce more data that might validate the decision of the World Health Organization to include Internet Gaming Disorder (IGD) in the International Classification of Diseases (ICD-11).

Across cultures therefore, gaming disorder has been widely studied. But despite the amount of data collected from these studies, the experts are still divided on whether or not online gaming should be considered an “addiction.” On the one hand, experts believe that classifying Internet Gaming Disorder as an official disorder would validate the pathological experiences of some gamers, and would allow clinicians to develop treatment (Kuss as cited in Basu, 2018).

On the other hand, many experts believe that classifying online gaming as an “addiction” would only lead to destructive stereotypes against the gaming community; furthermore, some believe that calling an adolescent gamer an “addict” can do them more emotional harm (Zastrow, 2017; Szalavitz as cited in Kamenetz, 2019).

While investigations worldwide are going on, however, studies in the Philippines regarding online gaming are scarce despite the fact that gaming is a continually growing hobby or e-sport in the country.

Because of the lack of resources and awareness, few stereotypes regarding gamers seem to be widespread in different communities: for example, it is often thought that gamers are lazy, more violent and aggressive, less sociable, and are more likely to indulge in vices. Several studies, however, have found no relationship between gaming behavior and violence or academic performance (Ferguson, 2011; Dumrique & Castillo, 2018; Fabito et al., 2018).

Locally, online gaming has also become popular especially for adolescents. It is not surprising therefore, that some parents worry that online gaming might affect their children's academic, social, and personal lives. With all of these facts in mind, the authors of this research are conducting this study.

More specifically, the authors are interested in studying what motivates the gamers to play online games as such information might help dispel the stereotype that the public might have regarding online gamers.

In sum, the primary motivation of this study is to contribute to the growing discussion about disordered gaming phenomena and understand the behavior and motives of the gaming subjects. In the end, the author hopes that the data from this research could help universities, colleges, local mental health providers, and more importantly, gamers and their families, in understanding and making informed decisions regarding their mental health.

Objectives of the Study

This study aimed to investigate the association between gaming behavior and motivations among the participants; specifically, it sought to answer the following statements:

1. What are the profile variables of the respondents in terms of the following: age, sex, gaming time, gaming frequency, gaming preference, gaming gadget?
2. What are the gaming behaviors of the respondents?
3. What are the gaming motives of the respondents?
4. Is there a significant difference among the gaming behavior of the respondents when grouped according to their profile variables?
5. Is there a significant difference among the gaming motives of the respondents when grouped according to their profile variables?
6. Is there a significant relationship between the gaming behavior and the motives of the respondents?

Contribution of the Study

The study can benefit school guidance counselors and local mental health providers by serving as their basis in identifying students at risk of unhealthy gaming habits as well as the students' underlying motive for gaming; doing so may help the counselors work with adolescent-gamers in finding an adaptive way of fulfilling their motives, or in managing their gaming habits. Hence, the results of the study could provide counselors information necessary for their prevention, intervention, remediation, and individualized plan. The study may also inform families of adolescent student-gamers who are otherwise misinformed of the nature of online gaming behaviors. It allows them to see gaming behavior on a motivational perspective which can allow them to provide understanding and support for adolescents with unhealthy gaming patterns

METHODOLOGY

This study used a descriptive-correlational design; it involved 246 adolescent student-gamers determined through purposive sampling. Standardized questionnaires such as the Internet Gaming Disorder Short Scale Form and Motives for Online Gaming Questionnaire were used, while the data were analyzed using frequency and percentage, arithmetic mean, Pearson Correlation Coefficient R-test, and One-way Analysis of Variance at 95% confidence level.

RESULTS AND DISCUSSIONS

Profile of Adolescent Student-Gamers

Table 1: Profile of Adolescent Student-Gamers

Age	(F=246)	Percentage
17-19 years old	39	15.9
15-16 years old	80	32.5
13-14 years old	86	35.0
10-12 years old	41	16.7
Sex		
Male	143	58.1
Female	103	41.9
Gaming Time		
Less than 1 hour	4	1.6
1 hour a day	55	22.4
1-2 hours a day	71	28.9
2-3 hours a day	47	19.1
3-4 hours a day	17	6.9
4-5 hours a day	20	8.1
More than 6 hours a day	25	10.2
Unspecified (Playing only when they have free time, during weekend etc)	7	2.8
Gaming Frequency		
6-7 days a week	97	39.4
4-5 days a week	38	15.4
2-3 days a week	72	29.3
1 day a week	39	15.9
Game Preference		
Mobile Legends	81	32.9

Genshin Impact	17	6.9
Dota 2	4	1.6
League of Legends	9	3.7
PUBG	33	13.4
Call of Duty	60	24.4
Minecraft	25	10.2
Others(Valorant, Fortnite, etc)	17	6.9
Gaming Gadget		
Mobile Gaming	201	81.7
PC Gaming	43	17.5
Console Gaming	1	.4
Ipad	1	.4

Table 1 shows the profile of the adolescent student-gamers. Majority of the respondents belong to the 13-14 year age group (35%), male (58.1%), play online games for around 1-2 hours a day (28.9%) 6-7 days a week (39.4%); majority also prefer to play Mobile Legends (32.9%) in their mobile phones (81.7%).

Gaming Behavior of the Adolescent Student-Gamers

Table 2: Gaming Behavior of the Respondents

Gaming Behavior	(F=246)	Percentage
likely manifesting a non-disordered gaming behavior	234	95.12
likely manifesting disordered gaming behavior	12	4.88

In Table 2, findings show that majority of the participants do not manifest problematic gaming behaviors (95.12%), while 4.88% of the participants are at risk of developing internet gaming disorder. This means that around 1 out of 25 adolescents in this study are likely manifesting most or all symptoms of problematic gaming such as: preoccupation with gaming activities, withdrawal and tolerance symptoms, inability to reduce or quit gaming, loss of interest to activities due to gaming, gaming despite problems, deceiving family and risking relationships, and using gaming to alleviate negative moods). It is important to note that this study does not diagnose the respondents of any disorder but merely assessing their likelihood of displaying disordered behaviors based on the Internet Gaming Disorder Short Scale Form (IGDS9-SF, Pontes et al.).

On the other hand, other studies using the same instrument have reported a 2.9% prevalence in a samples from clinical setting (n=131) and universities (n=3742) (Qin et al., 2020). However, most studies find a 3% likelihood of developing IGD based on a meta-analysis by Ferguson et al. (as cited by Markey & Ferguson, 2017). Lastly, in the study of Przybylski et al., a prevalence of .3-1% is associated with developing IGD (N=18,932).

The risk of developing IGD is higher among the adolescent population of this study as compared to previous studies. In other words, the Junior and Senior High School gamers of Saint Ferdinand College are at higher risk of developing internet gaming disorder. However, unlike past investigations, this study is conducted during a health crisis when most of the respondents are affected by the stay-at-home mandates which might have affected their behavior.

Moreover, there is growing evidence to suggest that gaming behavior, especially disordered gaming, can have negative effects on learning. For instance, a study by Gentile et al. (2011) found that excessive gaming was associated with poorer academic performance, lower grades, and reduced time spent on homework. Similarly, a meta-analysis by Ferguson (2015) revealed that problematic gaming was linked to lower academic achievement and decreased cognitive abilities, such as attention, memory, and decision-making.

In addition, disordered gaming may also hinder learners' social and emotional development. For example, a study by Van Rooij et al. (2014) reported that disordered gaming was associated with social isolation, aggression, and depression. Similarly, a study by Panek (2017) found that excessive gaming was linked to lower self-esteem, poorer interpersonal relationships, and decreased prosocial behavior.

Finally, these findings highlight the importance of monitoring and managing gaming behavior, particularly in educational contexts, to promote healthy and balanced learning outcomes.

Motives of the Adolescent Student-Gamers

Table 3: Motives of the Adolescent Student-Gamers

Gaming Motives	Mean
Competition	2.71
Coping	3.15
Escape	2.92
Fantasy	2.80
Recreation	3.54
Skill Development	3.18
Social	3.05

Table 3 shows that on average, the gaming behavior of respondents are motivated by their need for Recreation (x=3.54), followed by their need for Skill Development (x=3.18) and Coping (x=3.15).

The dimension “Recreation” refers to items in the MOGQ that indicate the relaxing aspect of gaming; “Skill Development,” on the other hand, refers to the items that reflect the participants’ need to develop their skills such as coordination and concentration among others; and “Coping” refers to items that reflect the need to cope with real problems such as distress, aggression, and anxiety (Demetrovics et al., 2011). The domain for Escape (leaving reality) which might be associated with problematic gaming is notably among the lowest mean in this study (x=2.92). Lastly, the lowest domain, “Competition,” means that the participants generally do not play games in order to defeat others and gain a sense of achievement (x=2.71).

Meanwhile, the results of this study are also consistent to the study of Demetrovics et al., which found that Recreation is the highest motive for individuals in 14-17 age group (x=4.03, N=1,239); while the domain “Coping” also ranks third (x=2.62). However, the next most important motive in the aforementioned study is Social (x=3.18) which presently ranks fourth (x=3.05).

Overall, results show that the respondents are primarily motivated to play games in order to relax, develop their skills for coordination and concentration, and to cope with their real-life problems. Moreover, results also show that the respondents are least motivated by the need to defeat others to gain self-fulfillment.

One interpretation of the data on gaming motives and means is that different gaming motives can have both positive and negative effects on learning. For example, the motive of skill development (mean=3.18) may be associated with increased cognitive and motor skills, problem-solving abilities, and task persistence, which can translate into improved academic performance and learning outcomes (Subrahmanyam et al., 2014). Similarly, the motive of recreation (mean=3.54) may provide a relaxing and enjoyable experience, which can enhance learners' motivation, engagement, and creativity (Garris et al., 2002).

However, some gaming motives may also have negative effects on learning. For instance, the motive of escape (mean=2.92) may lead to excessive gaming and addiction, which can interfere with learners' academic and social functioning (Kuss et al., 2012). Similarly, the motive of competition (mean=2.71) may generate high levels of stress, aggression, and cheating, which can undermine learners' moral and ethical values, and hinder their ability to collaborate and communicate effectively (Wright et al., 2011).

Therefore, it is important for educators and game designers to consider the potential benefits and risks of different gaming motives, and to integrate them into effective and balanced learning experiences that promote learners' cognitive, affective, and social development (Prensky, 2012).

Significant Difference among the Gaming Behaviors of the Respondents when grouped according to their Profile Variables

Table 4: Analysis of Variance (ANOVA F-test) on the difference among Gaming Behavior of the Respondents when grouped according to their Profile Variables

Profile	Significance ANOVA F	Analysis	Decision	Remarks
Age	0.312	F > .05	Accept Ho	There is No Significant Difference
Sex	0.578	F > .05	Accept Ho	There is No Significant Difference
Gaming Time	0.000	F < .05	Reject Ho	There is Significant Difference
Gaming Frequency	0.000	F < .05	Reject Ho	There is Significant Difference
Game Preference	0.127	F > .05	Accept Ho	There is No Significant Difference

Gaming Gadget	0.251	F > .05	Accept Ho	There is No Significant Difference
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Table 4 shows the significant difference among the gaming behavior of the respondents when grouped according to their profile variables using Analysis of Variance ANOVA F – test at 0.05 level of significance.

As revealed in the table, the significance F values on the profiles age, sex, gaming preference, and gaming gadgets were greater than 0.05, hence, the null hypothesis was accepted. This means that there is no significant difference among the gaming behavior of the respondents when grouped according to their profile variables such as age, sex, gaming preference, and gaming gadgets.

Meanwhile, these results can be contrasted with the study of Qin et al., (2020) where differences in gaming behavior was observed when respondents were grouped according to their sex. Particularly, the study found that male participants were more likely to have high scores in the IGDS9-SF (4.5%, 95% CI=3.5-5.5) than females, which means higher disordered-gaming prevalence (1.7%, 95% CI=1.1-2.2, $\chi^2 = 25.16$, $p=0.0001$). However, the association of age, gaming preference, and gaming gadgets were not mentioned in the aforementioned study, hence, future studies should aim to explore these aspects.

On the other hand, for respondents' profile on gaming time and gaming frequency, the significance F values were less than 0.05, hence, the null hypothesis was rejected. This means that there is a significant difference among the gaming behavior of the respondents when grouped according to their profiles such as gaming time and gaming frequency.

On this note, Qin et al.'s study concurs with the results as far as the difference among gaming behaviors when grouped according to gaming time, particularly, study shows that higher gaming time is associated with disordered-gaming prevalence.

Overall, the results indicate that the age, sex, gaming preference, and gaming gadgets of the respondents did not affect the respondents' gaming behaviour; however, it was significantly affected by their gaming time and game frequency. This means that patterns of disordered and non-disordered gaming among the respondents is associated with their gaming time and frequency.

Significant Difference among the Gaming Motives of the respondents when grouped according to their Profile Variables

Table 5: One-way Analysis of Variance among the Respondent's Gaming Motives when grouped according to their Profile Variables

Age	F	Analysis	Remarks
Competition	0.642	F > .05	There is No Significant Difference
Coping	0.092	F > .05	There is No Significant Difference
Escape	0.042	F < .05	There is Significant Difference
Fantasy	0.183	F > .05	There is No Significant Difference
Recreation	0.005	F < .05	There is Significant Difference
Skill Development	0.035	F < .05	There is Significant Difference
Social	0.01	F < .05	There is Significant Difference
Sex	F	Analysis	Remarks
Competition	0	F < .05	There is Significant Difference
Coping	0.282	F > .05	There is No Significant Difference
Escape	0.255	F > .05	There is No Significant Difference
Fantasy	0.608	F > .05	There is No Significant Difference
Recreation	0.032	F < .05	There is Significant Difference
Skill Development	0.035	F < .05	There is Significant Difference
Social	0.004	F < .05	There is Significant Difference
Gaming Time	F	Analysis	Remarks
Competition	0	F < .05	There is Significant Difference
Coping	0	F < .05	There is Significant Difference
Escape	0	F < .05	There is Significant Difference
Fantasy	0	F < .05	There is Significant Difference

Recreation	0	F < .05	There is Significant Difference
Skill Development	0	F < .05	There is Significant Difference
Social	0	F < .05	There is Significant Difference
Gaming Frequency	F	Analysis	Remarks
Competition	0	F < .05	There is Significant Difference
Coping	0	F < .05	There is Significant Difference
Escape	0	F < .05	There is Significant Difference
Fantasy	0	F < .05	There is Significant Difference
Recreation	0	F < .05	There is Significant Difference
Skill Development	0	F < .05	There is Significant Difference
Social	0	F < .05	There is Significant Difference
Gaming Preference	F	Analysis	Remarks
Competition	0.037	F < .05	There is Significant Difference
Coping	0.018	F < .05	There is Significant Difference
Escape	0.104	F > .05	There is No Significant Difference
Fantasy	0.197	F > .05	There is No Significant Difference
Recreation	0.002	F < .05	There is Significant Difference
Skill Development	0.011	F < .05	There is Significant Difference
Social	0.007	F < .05	There is Significant Difference
Gaming Gadget	F	Analysis	Remarks
Competition	0.169	F > .05	There is No Significant Difference
Coping	0.237	F > .05	There is No Significant Difference
Escape	0.151	F > .05	There is No Significant Difference
Fantasy	0.207	F > .05	There is No Significant Difference
Recreation	0.175	F > .05	There is No Significant Difference
Skill Development	0.031	F < .05	There is Significant Difference
Social	0.463	F > .05	There is No Significant Difference

Table 5 shows that some gaming motives are associated with the student-gamers' profile variables. Particularly, it shows that age is linked with the motives Escape ($p=.042$), Recreation ($p=.005$), Skill Development ($p=.035$), and Social ($p=.010$); sex is linked with Competition ($p=.000$), Recreation ($p=.032$), Skill Development ($p=.035$), and Social ($p=.004$); gaming time and gaming frequency is linked with Competition, Coping, Escape, Fantasy, Recreation, Skill Development, and Social, when grouped according to their gaming time ($p=.000$); gaming preference is linked with Competition ($p=.037$), Coping ($p=.018$), Recreation ($p=.002$), Skill Development ($p=.011$), and Social ($p=.007$); and lastly, gaming gadget is linked with Skill Development ($p=.031$). Overall, data shows that, except for gaming time and frequency, only specific gaming motives may be associated with the student-gamers' profile variables. This means further that how long the gamers play online games may be linked with their motives across all domains.

Significant Relationship between the Gaming Behavior and Motives of the respondents

Table 6: Pearson's Coefficient of Correlation r-test on the Significant Relationship between the Gaming Behavior and Motives of the Respondents

Along	Significance Pearson's r	Analysis	Decision	Remarks
Competition Total	.000	$r < .05$	Reject Ho	There is Significant Relationship
Coping Total	.000	$r < .05$	Reject Ho	There is Significant Relationship
Escape Total	.000	$r < .05$	Reject Ho	There is Significant Relationship

Fantasy Total	.000	$r < .05$	Reject Ho	There is Significant Relationship
Recreation Total	.000	$r < .05$	Reject Ho	There is Significant Relationship
Skill Development Total	.000	$r < .05$	Reject Ho	There is Significant Relationship
Social Total	.000	$r < .05$	Reject Ho	There is Significant Relationship

Table 16 shows the significant relationship between the respondents' gaming behavior and the gaming motives along competition, coping, escape, fantasy, recreation, skill development and social using Pearson's Coefficient of Correlation r – test at 0.05 level of significance.

As revealed in the table, the significance r values were less than 0.05. The null hypothesis was rejected. There is a significant relationship between the respondents' gaming behavior and the gaming motives along competition, coping, escape, fantasy, recreation, skill development and social. These results can be seen in a light of a prior study which found that all MOGQ motives positively correlated with problematic gaming behavior (Király et al. as cited in Wu et al.).

Overall, results indicate that the gaming motives of the respondents in all domains significantly influence their gaming behavior. In other words, whether a gamer has a disordered or non-disordered gaming behavior is affected by the motives they have for gaming. This might be because, as Sharma, Narasimha, & Singh (2021) found out, gaming is used to fulfill a need, while a lack of fulfillment of these needs can lead to obsessive gaming or problematic gaming.

Meanwhile, studies about specific gaming motives that are associated with disordered-gaming patterns have already been conducted before. For example, Wu et al., found that general motivation and the domain for Escape were the top two largest predictor of gaming disorder symptoms. This is consistent with other studies that found that the need to Escape is associated with more symptoms for gaming disorder (Billieux et al.; Kuss et al.; Li, Liau, & Khoo, as cited by Wu et al.).

On the opposite end, studies also find that motives such as Fantasy, Coping, and Skill Development, were not significant predictors of problematic gaming (Király et al., and/as cited by Wu et al.). In fact, prior findings suggest that respondents high in Skill Development motive were not vulnerable to gaming disorder symptoms.

In conclusion, findings suggest that although all motives have significant relationship with gaming behavior, the primary motives of an average participant, which are Recreation, Skill Development, and Coping (see table 3) are inversely associated with gaming disorder symptoms which means that most respondents are not vulnerable to having gaming disorder.

CONCLUSIONS AND RECOMMENDATIONS

Based on the summary of the findings, the research conclude that student gamers play games in order to fulfill various motives. Hence, to address unhealthy gaming behavior, one might need to determine and resolve which motive the gamer is trying to satisfy through gaming. The determination of a gamer's underlying motive can be facilitated by different instruments such as the MOGQ followed by subsequent assessment, interview, or observation. It is also found that the growing concern of parents and teachers regarding the rise of unhealthy gaming habits among the adolescents in the population may not be entirely unfounded. Hence, measures to address the issue or further the investigation regarding the matter might be beneficial. Gaming, especially disorganized gaming, may also impair learning. It is found out that excessive gaming was linked to inferior academic performance, grades, and homework time. Problematic gaming was connected to lower academic achievement and cognitive capacities like attention, memory, and decision-making. Disordered gaming may also impede students' social and emotional development. Disordered gaming was linked to social isolation, violence, and sadness and excessive gaming affected self-esteem, interpersonal relationships, and prosocial conduct. Certain gaming objectives may hinder learning. Escape motive may lead to excessive gaming and addiction, which can impair students' academic and social functioning. Competition motive can cause tension, anger, and dishonesty, which can damage students' morals and communication skills. So, educators and game designers must weigh the pros and downsides of diverse gaming motives and include them into balanced learning experiences that foster cognitive, affective, and social growth. It is highly recommended that the monitoring and moderating gaming behavior in educational settings is necessary to promote healthy and balanced learning results.

REFERENCES

1. AFP Relaxnews, 2020. (2020, November 17). Video games may in fact be good for your mental health. INQUIRER.net. <https://technology.inquirer.net/105627/video-games-may-in-fact-be-good-for-your-mental-health>.

2. Basu, T. Jan. 2018. You Play Games a Lot. Are you an Addict? The WHO recognized gaming addiction as a mental illness. But is it real? Daily Beast.
3. Biong, I. (2020, December 11). There's a Virus among us: How gaming Helps Filipinos bond (and stay sane) amid the pandemic. INQUIRER.net. <https://technology.inquirer.net/106369/theres-a-virus-among-us-how-gaming-helps-filipinos-bond-and-stay-sane-amid-the-pandemic>.
4. Cherry, K. 2021. The 5 Levels of Maslow's Hierarchy of Needs. Verywellmind. Retrieved from <https://www.verywellmind.com/what-is-maslows-hierarchy-of-needs-4136760>
5. Colder Carras, M., Shi, J., Hard, G., & Saldanha, I. J. (2020). Evaluating the quality of evidence for gaming disorder: A summary of systematic reviews of associations between gaming disorder and depression or anxiety. PLOS ONE, 15(10). <https://doi.org/10.1371/journal.pone.0240032>
6. Cortes, M., Alcalde, J., Camacho., (2012). Effects of Computer Gaming on High School Students' Performance in Los Banos, Laguna, Philippines. 國際公共政策研究, 16(2), 75-88.
7. Demetrovics, Z., Urbán, R., Nagygyörgy, K., et al., (2011). Why do you play? The development of the motives for online gaming QUESTIONNAIRE (MOGQ). Behavior Research Methods, 43(3), 814-825. <https://doi.org/10.3758/s13428-011-0091-y>
8. Differences between men and women. Relationship Institute. (2021, April 12). Retrieved January 14, 2022, from <https://relationship-institute.com/differences-between-men-and-women/>
9. Dumrique, D. O., & Castillo, J. G. (2018). Online gaming: Impact on the academic performance and social behavior of the students in polytechnic university of the philippines laboratory high school. KnE Social Sciences, 3(6), 1205. <https://doi.org/10.18502/kss.v3i6.2447>
10. Fabito, B. S., Rodriguez, R. L., Diloy, M. A., Trillanes, A. O., Macato, L. G., & Octaviano, M. V. (2018). Exploring mobile Game ADDICTION, cyberbullying, and its effects on academic performance Among tertiary students in one University in the Philippines. TENCON 2018 - 2018 IEEE Region 10 Conference. <https://doi.org/10.1109/tencon.2018.8650251>
11. Fauth-Bühler, M., & Mann, K. (2017). Neurobiological correlates of internet gaming disorder: Similarities to pathological gambling. Addictive Behaviors, 64, 349-356. <https://doi.org/10.1016/j.addbeh.2015.11.004>
12. Ferguson, C. J. (2011). The influence of television and video game use on attention and school problems: A multivariate analysis with other risk factors controlled. Journal of Psychiatric Research, 45(6), 808-813. <https://doi.org/10.1016/j.jpsychires.2010.11.010>
13. Han WJ., Han, HD., Bolo, N., Kim, B., (2014). Differences in functional connectivity between alcohol dependence and internet gaming disorder. Addictive Behaviors, 2015, 41:12-19.
14. Himeno, M., & Tano, S. (2019). Analysis of motivation model using real user data from social games for smartphones extended to social factors based on maslow's hierarchy of needs. Lecture Notes in Computer Science, 114-124. https://doi.org/10.1007/978-3-030-22602-2_10
15. Hong, J.-C., Cheng, C.-L., Hwang, M.-Y., Lee, C.-K., & Chang, H.-Y. (2009). Assessing the educational values of digital games. Journal of Computer Assisted Learning, 25(5), 423-437. <https://doi.org/10.1111/j.1365-2729.2009.00319.x> <http://hdl.handle.net/11094/24497>
16. Hyun, G. J., Han, D. H., Lee, Y. S., Kang, K. D., Yoo, S. K., Chung, U.-S., & Renshaw, P. F. (2015). Risk factors associated with online game addiction: A hierarchical model. Computers in Human Behavior, 48, 706-713. <https://doi.org/10.1016/j.chb.2015.02.008>
17. Jap, T., Tiatri, S., Jaya, E. S., & Suteja, M. S. (2013). The development of Indonesian Online Game Addiction Questionnaire. PLoS ONE, 8(4). <https://doi.org/10.1371/journal.pone.0061098>
18. Kamenetz, A. (2019, May 28). Is 'gaming disorder' an illness? Who says yes, adding it to its list of diseases. NPR. <https://www.npr.org/2019/05/28/727585904/is-gaming-disorder-an-illness-the-who-say-s-yes-adding-it-to-its-list-of-diseases>.
19. Koeppe, M. J., Gunn, R. N., Lawrence, A. D., Cunningham, V. J., Dagher, A., Jones, T., Brooks, D. J., Bench, C. J., & Grasby, P. M. (1998). Evidence for striatal dopamine release during a video game. Nature, 393(6682), 266-268. <https://doi.org/10.1038/30498>
20. Kollam, D. P. (2020, September 16). Needs and problems of adolescence. Living in Well Being. Retrieved January 13, 2022, from <https://www.livinginwellbeing.org/needs-and-problems-of-adolescence/>
21. Kuss DJ, Griffiths MD (2012). Internet and gaming addiction: a systematic literature review of neuroimaging studies. Brain Sci. 2012 Sep 5;2(3):347-74.

22. Kuss, D. J., Pontes, H. M., & Griffiths, M. D. (2018). Neurobiological correlates in internet gaming Disorder: A systematic literature review. *Frontiers in Psychiatry*, *9*. <https://doi.org/10.3389/fpsy.2018.00166>
23. Labana, R. V., Hadjisaid, J. L., Imperial, A. R., Jumawid, K. E., Lupague, M. J., & Malicdem, D. C. (2020). Online game addiction and the level of depression among adolescents in Manila, Philippines. *Central Asian Journal of Global Health*, *9*(1). <https://doi.org/10.5195/cajgh.2020.369>
24. Laconi, S., Pirès, S., & Chabrol, H. (2017). Internet gaming disorder, motives, game genres and psychopathology. *Computers in Human Behavior*, *75*, 652–659. <https://doi.org/10.1016/j.chb.2017.06.012>
25. Leonard, J. (2018, July). What is gaming disorder and what does it mean for gamers? *Medical News Today*. <https://www.medicalnewstoday.com/articles/322478>.
26. López-Fernández, F. J., Mezquita, L., Ortet, G., & Ibáñez, M. I. (2021). Mediation role of gaming motives in the associations of the Five factor model of personality with weekly and DISORDERED gaming in adolescents. *Personality and Individual Differences*, *182*, 111063. <https://doi.org/10.1016/j.paid.2021.111063>
27. Markey, P. M., & Ferguson, C. J. (2017). Internet gaming addiction: Disorder or moral panic? *American Journal of Psychiatry*, *174*(3), 195–196. <https://doi.org/10.1176/appi.ajp.2016.16121341>
28. Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, *50*(4), 370–396. <https://doi.org/10.1037/h0054346>
29. Mcleod, S. (2020, December 29). Maslow's hierarchy of needs. *Simply Psychology*. <https://www.simplypsychology.org/maslow.html>. Meeting the needs of teens. *Penn State Extension*. (2021, December 29). Retrieved January 13, 2022, from <https://extension.psu.edu/meeting-the-needs-of-teens>
30. Murillo, M. (2021, June 27). Philippines among countries high on tweeting esports, gaming. *BusinessWorld*. <https://www.bworldonline.com/philippines-among-countries-high-on-tweeting-esports-gaming/>. Nasution, F. A., Effendy, E., & Amin, M. M. (2019). Internet gaming disorder (igd): A casereport of social anxiety. *Open Access Macedonian Journal of Medical Sciences*, *7*(16), 2664–2666. <https://doi.org/10.3889/oamjms.2019.398>
31. Parekh, R. (Ed.). (2018, June). Internet Gaming. *American Psychiatric Association*. <https://www.psychiatry.org/patients-families/internet-gaming>. Peterson, T. J. (n.d.). How many hours of video games is too much? *HealthyPlace*. Retrieved November 10, 2021, from <https://www.healthyplace.com/addictions/gaming-disorder/how-many-hours-of-video-games-is-too-much>.
32. Pontes, H. (n.d.). Internet gaming disorder scale–short-form (igds9-sf). *Dr. Halley Pontes*. <https://www.halleypontes.com/igds9sf>.
33. Pontes, H. M., & Griffiths, M. D. (2015). Measuring dsm-5 internet gaming disorder: Development and validation of a short psychometric scale. *Computers in Human Behavior*, *45*, 137–143. <https://doi.org/10.1016/j.chb.2014.12.006>
34. Przybylski, A. K., Weinstein, N., & Murayama, K. (2017). Internet gaming disorder: Investigating the clinical relevance of a new phenomenon. *American Journal of Psychiatry*, *174*(3), 230–236. <https://doi.org/10.1176/appi.ajp.2016.16020224>
35. Qin, L., Cheng, L., Hu, M., Liu, Q., Tong, J., Hao, W., Luo, T., & Liao, Y. (2020). Clarification of the Cut-off score FOR nine-item internet gaming Disorder Scale–Short FORM (igds9-sf) in a Chinese context. *Frontiers in Psychiatry*, *11*. <https://doi.org/10.3389/fpsy.2020.00470>
36. Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, *2*(3), 223–228. [https://doi.org/10.1016/s2352-4642\(18\)30022-1](https://doi.org/10.1016/s2352-4642(18)30022-1)
37. Sharma, M. K., Narasimha, S., & Singh, P. (2021). Battle of ROYALE game: Perspective From MASLOW'S hierarchy of needs. *International Journal of Social Psychiatry*, *002076402199157*. <https://doi.org/10.1177/0020764021991574>
38. Šporčić, B., & Glavak-Tkalić, R. (2018). The relationship between online gaming motivation, self-concept clarity and tendency toward problematic gaming. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *12*(1). <https://doi.org/10.5817/cp2018-1-4>
39. Statista Research Department, & 23, J. (2021, July 23). Philippines: Filipino gamers and streamers by number of followers 2021. *Statista*. <https://www.statista.com/statistics/1117028/philippines-top-filipino-gamers-and-streamers-by-number-of-followers/>. Statista Research Department.

- (2021, June 21). Philippines: Popular online games based on number of players 2020. Statista. Retrieved November 10, 2021, from <https://www.statista.com/statistics/1155790/philippines-popular-online-games-based-on-number-of-players/>.
40. Stockdale I, Coyne SM. 2018. Video game addiction in emerging adulthood: Cross-sectional evidence of pathology in video game addicts as compared to matched healthy controls. *Journal of Affective Disorders*, 2018, 225:265-272.
 41. Valenzuela, N. G. (2019, October 20). Video games ruin studies? But here they are studied. INQUIRER.net.<https://newsinfo.inquirer.net/1179595/video-games-ruin-studies-but-here-they-are-studied>.
 42. World Health Organization. (September, 2018). Addictive behaviours: Gaming disorder. World Health Organization. <https://www.who.int/news-room/q-a-detail/addictive-behaviours-gaming-disorder>.
 43. Wu, A. M., Lai, M. H., Yu, S., Lau, J. T., & Lei, M.-wai. (2017). Motives for online Gaming questionnaire: ITS psychometric properties and correlation with internet gaming disorder symptoms among Chinese people. *Journal of Behavioral Addictions*, 6(1), 11-20. <https://doi.org/10.1556/2006.6.2017.007>
 44. Zastrow, M. April 2017. News Feature: Is video game addiction really an addiction? *Proceedings of the National Academy of Sciences*.
 45. Zeliha, T. (2019). Internet addiction and loneliness as predictors of internet gaming disorder in adolescents. *Educational Research and Reviews*