Some factors associated with video game addiction of Filipinos found during the COVID-19 pandemic

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Abstract: As a response to the increasing popularity of video games and its increasing concern due to its potential harm, more so that the Internet Gaming Disorder (IGD) has become widely debated since its addition in 2013, together with its proposed criteria, by the American Psychiatric Association, this study aimed to examine the associations among personality, motivation, flow, and IGD, and whether these factors can even predict video game addiction based on existing literature.

Four valid and reliable scales were used and included in the questionnaire, along with questions about their demographic information as well as their gaming behaviors and preferences.

The results of the analyses show that conscientiousness (r = -0.160, p < 0.05), social motive (r = 0.223, p < 0.01), escape motive (r = 0.494, p < 0.001), competition motive (r = 0.276, p < 0.001), coping motive (r = 0.264, p < 0.001), skill development motive (r = 0.224, p < 0.01), fantasy motive (r = 0.440, p < 0.001), and flow (r = 0.516, p < 0.001) are significantly associated with IGD.

Moreover, being a student (ß = 3.4537, p < 0.05), agreeableness (ß = -0.6640, p < 0.05), social (ß = 0.6470, p < 0.05), escape (ß = 1.1075, p < 0.001), and flow (ß = 0.3891, p < 0.001) are found to be significant predictors of IGD.

Key Words: Video game addiction; Internet gaming disorder; personality; motivation; flow

1. INTRODUCTION

1.1 Problem and Review of Related Literature

Despite that there are more than 2.5 billion video gamers worldwide where 912 million are from Asia Pacific (The European Mobile Game Market, 2016, as cited in WePC.com, 2020) and an expected sales generated of 90 billion U.S. dollars by 2020 (BestTheNews, 2016, as cited in WePC.com, 2020), video gaming has continuously been the center of attention for its potential harm that it can cause to its relatively young user base of 28.66 million gamers in the Philippines (Statista, 2020), especially that it has become a common sight to see nowadays - Filipino students playing mobile video games during their break times in the school hallways, forming 25% of the gamer population in the Philippines in 2019 (Statista, 2020). That, as a result, a ban was placed in 1981 due to its influences on the "youth's morals" (The New York Times, 1981), an ordinance was implemented in a barangay in the province of Cavite banning the play of Defense of the Ancients (DotA) in computer cafes, a multiplayer online battle arena game (MOBA), as it was reported that the deaths of 2 teenagers can be attributed to the said game (Medina, 2015), and a proposed Video Games Act of 2018 or House Bill 7909 to regulate all video games in the Philippine market citing risks of addiction consequently affecting children's mental health (Business Mirror, 2018).

It is not surprising then that the Internet Gaming Disorder has been added to the DSM-5 in 2013 (American Psychiatric Association, 2013), further strengthened by World Health Organization (WHO) in 2016 where they clarify that the "gaming disorder" is not limited to video games played online, highlight the "impaired control over gaming" and priority placed on gaming over any other activity, and imply that it affects important areas of one's life to the extent that one cannot fully function in the society.

In addition to its surrounding controversy on whether it should be officially recognized as a "disorder", citing issues with the name itself and its proposed criteria by the American Psychiatric Association or APA, the current literature remains "problematic, inconsistent and lacking in basic foundational work" (Bean et al., 2017), and so to further understand the IGD from a wider perspective seems only fitting.

Due to its rapid growth, video game addiction has become the "most intriguing research topic" among the researchers in this field (Shin, 2007) and one of its most common observations is that looking into the personal and social factors (Shang et al., 2009) or individual characteristics (Chung et al., 2019) of these gamers has become "imperative" in the understanding of their video gaming experience, including addiction and its psychopathology (Kim et al., 2007) and so this study will attempt to determine the relationships of these individual variables to video game addiction, specifically whether certain personality traits, motivations and experiences can predict the development of IGD in a gamer.

1.2 Synthesis of existing literature

Personality, motivation, flow, and their associations with IGD have long been of interest to researchers due to their common need for further validation and their importance as the "key factors" (Gervasi et al., 2017; Salvarli & Griffiths, 2019, as cited in Gonzalez-Bueso et al., 2020).

For one, individuals who are: with higher neuroticism (Braun et al., 2016; Jeong & Lee, 2015), higher introversion (Braun et al., 2016; Gonzalez-Bueso et al., 2020; Seong et al., 2019), higher openness (Seong et al., 2019), and lower agreeableness (Braun et al., 2016; Gonzales-Bueso et al., 2020; Seong et al., 2019) are found to play games because the virtual world provides them a safe space where they can freely express themselves and where their desires can be even fulfilled, unlike in the real world where they are expected to strictly follow the rules of the society and thus behave according to socially accepted norms.

Aside from the needs satisfied by gaming in the different personality traits, these gamers are motivated for various reasons and will be at risk of addiction for they can become focused on accomplishing their goals such as in social (Edy et al., 2018; Laconi et al., 2017 as cited in King et al., 2017), competition (Edy et al., 2018) or skill development (Edy et al., 2018), or because they can choose to live in another world or "fantasy" (Edy et al., 2018; Laconi et al., 2017 as cited in King et al., 2017) away from their challenging realities or "escape" (Banyai et al., 2019; Edy et al., 2018; Kuss et al., 2012; Laconi et al., 2017 as cited in King et al., 2017).

As these individuals become preoccupied as they fully concentrate and become immersed in these video games, they forget things happening around them, lose track of time, and disconnect with the "real world" or what is referred to as flow, and consequently, they can become addicted (Hull et al., 2013, as cited in Andrade & Pontes, 2017; Khang et al., 2013, as cited in Andrade & Pontes, 2017; Skok, 2019; Ting-Jui & Chih-Chen, 2003, as cited in Hull et al., 2013).

As self-report instruments that measure the relationship of each factor with video game addiction produce varying results, however, the findings remain to be "somewhat conflicting" (Salvarli & Griffiths, 2019) or "inconsistent" (Shin, 2007).

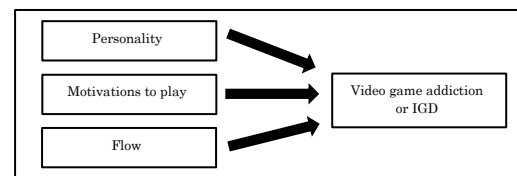## 1.3 Conceptual Framework

Fig. 1. Diagram of hypothesized associations of personality, motivations and flow with video game addiction or Internet Gaming Disorder.

Building on the learnings from previous research such as that a video game can cause different consequences and experiences for each gamer (Yee, 2007), this study aims to provide a holistic understanding by putting together personality traits, motivations and flow that put these gamers at risk.

Depending on these gamers' openness to experience or "individual's mental and experiential life", conscientiousness or "socially prescribed impulse

control", extraversion or "energetic approach", agreeableness or "prosocial and communal orientation", and neuroticism or "negative emotionality" (John et al., 2008), their motivations or "specific desirable or undesirable aims and categories of aims" (McClelland, 1985, as cited in Demetrovics et al., 2011), and flow or how completely absorbed they are in playing these video games, it is assumed that they can become addicted or "cause significant impairment or distress in several aspects (their lives)" due to gaming (Parekh, 2018).

1.4 Hypothesis

Based on the relationships found in existing literature, this study will attempt to validate whether personality, motivation and flow are factors associated with video game addiction.

2. METHODOLOGY

2.1 Instruments

Four valid and reliable scales were used to measure Internet Gaming Disorder, personality, motivations to play, and flow. These were included in a questionnaire to gather demographic information, specific information about participants' gaming behaviors.

To ensure that the demographic information was collected with respect and sensitivity not only to the culture of the gamer population but also to the individual characteristics of the participants such as gender, age and employment status, the bias-free language guidelines by the American Psychological Association (2020) was consulted.

Questions about their playing times, gaming experience, preferred game genre/s, and what type of gamer they consider themselves to be were added for cross-validation of some of the items in the scales and will also be possibly useful in the analyses, especially that it has been consistently recommended to compare groups of gamers playing different genres (Carlisle, 2017; Kuss et al., 2012; Seong et al., 2019).

The scales then formed the next section of the survey, and the directions were included to guide the participants in answering the questions.

Short version of the Big Five Inventory or BFI-10 (Rammstedt & John, 2007). A 5-point Likert scale with two items for each of the Big-Five personality factors, where participants are asked to rate each statement based on how they "strongly disagree to strongly agree". Studies, including this paper, have shown that it is reliable and valid ranging at r = 0.49 to r = 0.79 (Barbon, 2020; GESIS, n.d.).

Motives for Online Gaming Questionnaire or MOGQ (Demetrovics et al., 2011). Even though limited to identifying motivations in playing online games, as 15.66 million Filipino gamers are forecasted to be playing online games in 2021 (Statista, 2021), this was found useful for the purposes of this research, especially that it has been proven to be reliable and valid ranging at α = 0.79 to α = 0.90 (Barbon, 2020; Demetrovics et al., 2011).

Flow subscale in Game Experience Questionnaire (Poels et al., 2007). Six items in the game questionnaire are intended to measure flow as a factor in game experience, on a scale of 0 ("not at all") to 4 ("extremely"). The reliability and validity of the Flow subscale were also reported to be satisfactory at α = 0.866 (Poels et al., 2007) and α = 0.889 (Barbon, 2020).

Internet Gaming Disorder Scale–Short-Form or IGDS9-SF (Pontes & Griffiths, 2015). Based on the nine criteria by the American Psychiatric Association (2018), it has a total of 9 items validated with reliability and validity (Pontes, 2020). As seen in the other scales used in this study, the IGDS9-SF was found to be well-reliable (Tavakol & Dennick, 2011), α = 0.875 (Barbon, 2020).

2.2 Procedure

163 gamers ages 15 to 47 were invited to answer an online questionnaire via Google Forms.

Once the questionnaire has been approved for use, links to the online survey were posted in both Facebook and Instagram, social networking sites, and were made public. To encourage participation, direct messages to family, friends or classmates were also sent to invite them to answer the survey, and share if possible with their friends who they believe are playing games. In other words, convenience sampling.

The consent form was included in the introduction to be signed by the participants, followed by the four scales.

2.3 Data Analysis

Preliminary analyses began with identifying outliers or extremes that may affect the representativeness of the sample through the transformation of the raw scores to z-scores using

Jamovi, a statistical tool, which resulted in 4 items being removed and 159 responses retained.

The participants' responses were then loaded and run with different pre-made statistical tests.

Along with the scales' own scoring systems, the scores were the main source of data for this analysis. Additionally, the demographic information and gaming-related questions were then used to generate useful findings through descriptive statistics.

Pearson's correlation was mainly used to measure the magnitude and strength of the relationships between each factor and video game addiction, and even among factors. The hypothesis was then confirmed or rejected based on the Pearson's r or product-moment correlation coefficient.

Presented with an opportunity to contribute to the ongoing research in this field of study, the multiple regression analysis helped determine which factors significantly affect the development of video game addiction and how these factors relate to each other.

3. RESULTS AND DISCUSSION

Solely based on the results of the descriptive statistical analyses, the gamer respondents can be described as about 24-year-old (M = 23.5, SD = 6.22), male (62.3%), employed for wages (50.3%), and casually playing for 1 to 3 hours a day (44.7%) with 10+ years of experience (61.6%). Furthermore, they play mostly for recreation (M = 8.82, SD = 1.48), skill development (M = 7.16, SD = 2.22), and escape (M = 7.27, SD = 2.39), and scored 13.6 on average (SD = 5.51) for flow and 20.3 on average (SD = 6.93) for IGD.

In relation to their IGD scores, however, it was found that the "hardcore" (M = 23.3, SD = 7.31) gamers significantly differ from the "casual" ones (M = 19.3, SD = 6.49), $t(157)$ = 3.34, p = 0.001, and that those who have been playing video games 7-9 hours (M = 25.4, SD = 8.21) and 10+ hours (M = 25.4, SD = 8.94) significantly differ from those who have been playing video games 4-6 hours (M = 19.9, SD = 4.77), 1-3 hours (M = 19.6, SD = 6.23), and <1 hour (M = 17.0, SD = 8.29) a day, $F(4, 154)$ = 5.36, p < 0.001. To put it simply, the type of gamer they consider themselves to be and their gaming experience then significantly affect their level of addiction.

Among the significant correlations found between the variables and IGD and even among the factors themselves, following the rule of thumb by

Hinkle et al. (2003, as cited in Mukaka, 2012) in interpreting these results, flow is found to be moderately positively correlated with video game addiction (r = 0.516, p < 0.001). It must be that the more they are preoccupied with gaming, disconnected with the outside world, these gamers become addicted, confirming the results found in Skok (2019).

Several factors that predict IGD are also identified.

As in the findings of Vollmer et al. (2014) where they found age as a predictor of computer game addiction, being a student (ß = 3.4537, p < 0.05) significantly predicts IGD. Considering that the students might have more free time and might have less responsibilities as compared to the other groups such as the employed ones for instance, it is reasonable then that they will be able to play longer, more intensely, and thus can get addicted.

Although a significant correlation cannot be established between agreeableness and IGD. it was found to significantly predict IGD (ß = -0.6640, p < 0.05), where the more agreeable the gamer is, the less likely they will develop IGD, confirming the earlier findings of Gonzalez-Bueso et al. (2020). The video games must be offering these less agreeable gamers a different world where they can be aggressive and hostile to their in-game "enemies" without fear of getting called out.

In terms of motives, social (ß = 0.6470, p < 0.05) and escape (ß = 1.1075, p < 0.001) are confirmed to significantly predict IGD, as proposed by Edy et al. (2018) and Laconi et al. (2017, as cited in King et al., 2017). Undoubtedly, their desires to build new relationships and to avoid confronting their real-life problems will encourage these gamers to play to the extent that they become consciously or unconsciously addicted.

Further to the significant moderate positive correlation between flow and IGD, it is also proposed to predict IGD (ß = 0.3891, p < 0.001), strengthening the previous findings by Hull et al. (2013, as cited in Andrade & Pontes, 2017) and Skok (2019). It must be their immersion into these games that put them at a great risk towards addiction.

As the data was collected during the pandemic, it can be expected that being a student, the social and escape motives, and flow affect the addiction scores in the sample.

4. CONCLUSIONS

In summary, there are certain personality traits, specific motivations and flow that increase the risk of developing an Internet Gaming Disorder, which policymakers and interested researchers must further look into. While this paper has sufficiently provided evidence, with its considerable sample size of $n = 159$, the question remains - "what are the other factors and/or processes that occur between these predictors and video game addiction or IGD?". This is said in recognition that no causal relationship has been established in this study while it serves as a good reference point for future and further research.

5. ACKNOWLEDGMENTS

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