

ORIGINAL ARTICLE

The Relationship Between Game Addiction, Psychosocial Effects and Academic Performance Among Undergraduate Students of University of Cyberjaya

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ABSTRACT

Introduction: Online games addiction has been shown to cause changes to one's emotion and behaviour. Moreover, academic performance could be affected too. Therefore, this study aims to assess the relationship between game addiction, psychosocial effects and academic performance of undergraduate students in University of Cyberjaya (UoC). **Methods:** A cross sectional study was conducted among undergraduate students of University of Cyberjaya (UoC), Cyberjaya, Selangor from 4 different faculties. Respondents were selected through a random sampling method and data has been collected through online form using validated questionnaires. **Results:** Overall prevalence of online games addiction was high among the age group of 20-24 years old (18.26%), Other ethnicity group (44.45%), and among male students (35.72%). Data analysed using chi square in this study has shown an association between online games addiction and psychosocial effects (p-value = <0.001) but no association between online games addiction and academic performance (p-value = 0.850). **Conclusion:** Students who were addicted to online games have been related to having psychosocial effects but association between gaming addiction and academic performance was not being carried out in this study. This might be due to other factors including level of intelligence and time spent on studying. We recommend that awareness campaigns on the influence of online gaming should be strengthened as a measure to reduce the prevalence of online games addiction and counselling to be given for those with early symptoms of psychosocial effects regardless of being addicted or not.

Keywords: Online games addiction, Depression, Anxiety, Stress, Academic performance

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INTRODUCTION

According to a study in Saudi Arabia, 16% of university students were reported to become addicted to video games (1). Game addiction is defined as problematic engagement of the players toward the video games they are playing. Meanwhile, psychosocial effects are defined as the impacts arising from the surrounding or biological aspect on individual psychological involvement. According to a study done in 2008, 50% of the respondents revealed that they have the tendency to show emotional and behavioural changes from playing video games (2).

Moreover, academic performance is not only measured by the result from the final examination but also the student's behaviour in the class as well as their behaviour toward the assignment given. A study done in International Islamic University Malaysia (IIUM) reported that there was no relationship between gaming frequency and academic performance of students. The result of this study implies that being non-gamers does not guarantee students to perform well at universities (3).

Focusing on this research aims, we decided to collect data to address the relationship and correlation between one another that could have an impact on the academic performances between the sex, ethnicities and age among students. Since many studies have been done, there are many effects, both positive and negative impacts reported regarding game addiction

towards student's psychosocial and academic performance. Therefore, a cross-sectional study using questionnaires to assess the relationship between game addiction, psychosocial effects and academic performance of students who are studying in University of Cyberjaya (UoC) was carried out. By doing this research, we've gained more understanding on the relationship between game addiction, psychosocial effects as well as academic performance among the students.

MATERIALS AND METHODS

Samples

A descriptive cross-sectional study was carried out in University of Cyberjaya (UoC), Selangor, which consisted of approximately 3500 students who are enrolled in more than 30 programmes ranging from undergraduate degree to postgraduate research courses in areas such as medicine, pharmaceutical sciences, psychology and more. Four faculties have been chosen randomly, and simple random sampling was conducted to select the respondent within the faculty. 100 undergraduate Malaysian students from each Faculty of Medicine, Faculty of Pharmacy, Faculty of Allied Health Science and Faculty of Safety and Health in University of Cyberjaya, were selected. Respondents who refused to participate in the survey will be considered as non-response.

Statistical analysis

Data was collected through online form using validated questionnaires. The data has been analysed using descriptive statistics to get the frequency and relative frequency (percentage) for game addiction level, sociodemographic variables, academic performances and psychosocial factors. The association was determined by Pearson chi-square test. The level of significance was set at $p < 0.05$ and confidence level at 95%.

Operational Definition

According to DSM5, internet gaming disorder refers to 'persistent and recurrent use of the internet to engage in games, often with other players, leading to clinically significant impairment or distress as indicated by 5 or more criteria in a 12-month period.' (Preoccupation with gaming, Withdrawal symptoms when gaming is taken away, the need to spend more time gaming to satisfy the urge, Inability to reduce playing, Loss of interest in previously enjoyed activities due to gaming, Continuing to game despite problems, Deceiving family members or others about the amount of time spent on gaming, The use of gaming to relieve negative moods, having jeopardized or lost a job or relationship due to gaming) (4).

So based on that, we classify those who have 5 of the criteria as addicted to games, and those below it as non-addicted to games.

Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, decreased energy, feelings of guilt or low self-worth, disturbed sleep or appetite, and poor concentration. Symptoms must last at least two weeks and must represent a change in your previous level of functioning for a diagnosis of depression (5).

DSM-5 defines generalized anxiety disorder as excessive worry about events or activities for most days during at least 6 months, as the first diagnostic criteria. The worry is difficult to control. It is associated with three or more of the following six symptoms which are restlessness, fatigue easily, difficulty concentrating and sleeping, irritability, and muscle tension. The anxiety is distressing and causes impairment in important areas of the person's life. The worry is not caused by substance use or any medical condition. The anxiety is not better explained by another mental disorder (4).

Based on the above, we have classified those who fulfil 6 of the criteria as addicted to game, whereas those who are not as non-addicted to game.

Stress refers to a process of adjusting to or dealing with conditions that disrupt a person's physical and psychological functioning. The person might present with difficulty in relaxing, nervousness, agitation, irritability and impatience for at least one month (4).

RESULT

Sociodemographic Data

Result in Table I shows total of 399 participants participated in this study with the response rate of 99%. From the data, most observed population is among females (68.4%), those who are studying in 4th year (31.35%), Malay students (76.7%) and Muslims (79.7%).

Prevalence rates of internet game addiction

Based on the result in Table II, the majority (82.7%) of the respondents are non-addicted to games. Result in Table III shows the prevalence of addiction to games among male students (35.72%), is higher than the prevalence of addiction to games among female students (8.8%).

In terms of ethnicity in Malaysia, it could be established that the highest prevalence of online game addiction was observed among Others (44.45%), followed by Chinese (30%), Malay (14.71%) and Indian (8.33%).

Within the age group, the prevalence of online game addiction among students of University of Cyberjaya was the highest in the 20-24 age group with 18.26%.

Game Addiction and Depression

Based on Table IV, the result shows among students who were addicted to games, 43.48% had no to minimal depression, 52.17% had moderate to severe depression and only 4.35% were severely depressed.

The data analysed using chi-square test showed that there was significant association between depression level and game addiction level ($p < 0.001$).

Game Addiction and Anxiety

Result in Table V shows among students who were non-addicted to gaming, 55.45% of them had no to minimal anxiety, 30% had moderate to severe anxiety and 14.54% were severely anxious. For students who were addicted to games, 26.09% had no to minimal anxiety, 30.43% had moderate to severe anxiety and up to 43.48% had severe anxiety.

The data analysed using chi-square test showed that there was significant association between anxiety level and game addiction level ($p < 0.001$).

Game Addiction and Stress

Based on the result in Table VI, among students who were non-addicted to gaming, 87.27% of them had no to minimal stress, 10.9% had moderate to severe stress and 2.72% had severe stress. Additionally, among students who were addicted to gaming, 65.22% of the students were under no to minimal stress, 30.43% were under moderate to severe stress and 4.35% were severely stressed out.

Table I : Sociodemographic Factors among Students of University of Cyberjaya (UoC)

| VARIABLE | | N | % |
|-----------|-----------|-----|-------|
| GENDER | MALE | 126 | 31.6 |
| | FEMALE | 273 | 68.4 |
| YEAR | 1 | 78 | 19.5 |
| | 2 | 76 | 19 |
| | 3 | 120 | 30.15 |
| | 4 | 125 | 31.35 |
| ETHNICITY | MALAY | 306 | 76.7 |
| | CHINESE | 27 | 6.8 |
| | INDIAN | 36 | 9 |
| | OTHERS | 30 | 7.5 |
| RELIGION | ISLAM | 317 | 79.7 |
| | CHRISTIAN | 30 | 7.5 |
| | OTHERS | 52 | 12.8 |

Table II : Prevalence rate of game addiction among students of University of Cyberjaya (UoC)

| GAME ADDICTION SCALE | FREQUENCY (N) | PERCENTAGE (%) |
|----------------------|---------------|----------------|
| NON-ADDICTED | 330 | 82.7 |
| ADDICTED | 69 | 17.3 |
| TOTAL | 399 | 100 |

Table III : Prevalence rate of game addiction between gender, ethnicities and age-group among students of University of Cyberjaya (UoC)

| DEMOGRAPHIC | | GAME ADDICTION SCALE | | Total, n (%) | P-value |
|-------------|---------|----------------------|-----------------|--------------|---------|
| | | NON-ADDICTED, n (%) | ADDICTED, n (%) | | |
| GENDER | MALE | 81(64.28) | 45(35.72) | 126(100) | 0.000 |
| | FEMALE | 249(91.2) | 24(8.8) | 273(100) | |
| ETHNIC | MALAY | 261(85.29) | 45(14.71) | 306(100) | 0.000 |
| | CHINESE | 21(70) | 9(30) | 30(100) | |
| | INDIAN | 33(91.67) | 3(8.33) | 36(100) | |
| | OTHERS | 15(55.55) | 12(44.45) | 27(100) | |
| AGE | 17-19 | 21(87.5) | 3(12.5) | 24(100) | 0.007 |
| | 20-24 | 282(81.74) | 63(18.26) | 345(100) | |
| | 25-27 | 27(90) | 3(10) | 30(100) | |

Table IV : Relationship between game addiction and depression among students of University of Cyberjaya (UoC)

| GAME ADDICTION SCALE | DEPRESSION | | | TOTAL n (%) | X2 | p-value |
|----------------------|---------------------|--------------------------|-------------|-------------|--------|---------|
| | NO TO MINIMAL n (%) | MODERATE TO SEVERE n (%) | SEVERE n(%) | | | |
| NON-ADDICTED | 222 (67.27) | 96 (29) | 12 (3.63) | 330 (100) | 17.217 | <0.001* |
| ADDICTED | 30 (43.48) | 36 (52.17) | 3 (4.35) | 69 (100) | | |

*The data analysed using chi-square test showed that there was significant association between depression level and game addiction level ($p < 0.001$).

Table V : Relationship between game addiction and anxiety among students of University of Cyberjaya (UoC)

| GAME ADDICTION SCALE | ANXIETY LEVEL | | | TOTAL n (%) | X2 | p-value |
|----------------------|---------------------|--------------------------|--------------|-------------|--------|---------|
| | NO TO MINIMAL n (%) | MODERATE TO SEVERE n (%) | SEVERE n (%) | | | |
| NON-ADDICTED | 183 (55.45)) | 99 (30) | 48 (14.54) | 330 (100) | 65.946 | <0.001* |
| ADDICTED | 18 (26.09) | 21 (30.43) | 30 (43.48) | 69 (100) | | |

*The data analysed using chi-square test showed that there was significant association between anxiety level and game addiction level ($p < 0.001$).

Table VI : Relationship between game addiction and stress among students of University of Cyberjaya (UoC)

| GAME ADDICTION SCALE | STRESS LEVEL | | | TOTAL n (%) | X2 | p-value |
|----------------------|---------------------|--------------------------|--------------|-------------|-------|---------|
| | NO TO MINIMAL n (%) | MODERATE TO SEVERE n (%) | SEVERE n (%) | | | |
| NON-ADDICTED | 288 (87.27)) | 36 (10.9) | 6 (2.72) | 330 (100) | 51.96 | <0.001* |
| ADDICTED | 45 (65.22) | 21 (30.43) | 3 (4.35) | 69 (100) | | |

*The data analysed using chi-square test showed that there was significant association between stress level and game addiction level ($p < 0.001$).

Table VII: The association between online games and academic performance among students of University of Cyberjaya (UoC)

| GAME ADDICTION SCALE | ACADEMIC PERFORMANCE | | | X2 | p-value |
|----------------------|------------------------|------------|-------------|-------|---------|
| | LESS TO MODERATE n (%) | GOOD n (%) | TOTAL n (%) | | |
| NON-ADDICTED | 62(18.8) | 268(81.2) | 330(100) | 0.381 | <0.850* |
| ADDICTED | 15(21.7) | 54(78.3) | 69(100) | | |

*The data analysed using the chi-square test showed that there was no significant association between game addiction and academic performance ($p = 0.850$).

The data analysed using chi-square test showed that there was significant association between stress level and game addiction level ($p < 0.001$).

Game Addiction and Academic Performance

Based on the result in Table VII, among students who were not addicted to gaming, 18.8% of them had less to moderate academic performance and 81.2% had good academic performance and among students who were addicted to gaming, 21.7% had less to moderate academic performance and 78.3% had good academic performance.

The data analysed using the chi-square test showed that there was no significant association between game addiction and academic performance ($p = 0.850$).

DISCUSSION

The prevalence of online games addiction was high among the age group of 20-24 years old (18.26%). This probably due to the students in the range of 20-24 years old contributed significantly, reported by studymalaysia.com, where bachelor degree students come from the age of 19 or 20 onwards with post-secondary, pre-university, and university foundation qualifications.

The outcome of our study had indicated that ethnics included in the 'Others' group contributed the highest percentage to online game addiction, which were (44.45%), followed by Chinese (30%), Malay (14.71%), and Indian (8.33%). Only a few studies were being conducted regarding the relationship between ethnicities and online game addiction in Malaysia.

Besides, the prevalence of online game addiction among male students (35.72%) was consistent with the studies done in Taiwan (81.8%) (4) and Iran (15.82%). Male students tend to attain online game addiction because the games which cause addiction the most originated from the feelings of aggression (6) and competition (7).

A study was done implementing that there was a statistically significant association between video game addiction and psychological health ($p < 0.05$) (8), and this was consistent with our finding where there was a significant association between online games addiction and psychosocial effects ($p < 0.001$). Furthermore, studies reported that youth who were the problem- or addicted gamers had a greater risk of feeling low, irritable or in a bad mood, nervous, tired and exhausted, and feeling afraid compared to non-problem or non-addicted gamers (9).

There was no association between online game addiction and academic performance ($p = 0.850$). Though addiction to gaming leads to negative academic performance, engaging in gaming moderately

can give rise to improved academic performance (10). However, this hypothesis was unable to be reinforced by the findings shown in Table 4.4 as the results revealed that among students who were addicted to gaming, 21.7% had less to moderate academic performance and 78.3% had good academic performance. The result is supported by a study implementing a negative relationship between game addiction and scholastic performance as there are other factors causing poor academic performance such as level of intelligence and time spent in studies (11). In fact, a study has shown that there is no correlation between time spent on video games and academic performance and in contrast, there are some regular gamers who can score better than non-gamers (3). On the other hand, time spent on gaming is hypothesised to affect students negatively as reported by Ip, Jacobs and Watkins showing a significant relationship between duration of gaming and academic performance (12).

CONCLUSION

The result of this study showed a significant association between game addiction and psychosocial effects. However, there is no association between online game addiction and academic performance. This could be due to other factors contributing to it, such as intelligence level and time spent on studying.

Therefore, awareness programs should be focused on the target group of game addiction to implement certain measures to prevent it. Counselling should be given for those with early symptoms of psychosocial effects regardless of being addicted or not.

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