

## Relationship between Game Experience and Perceived Stress among Young Adults during COVID-19

Ismat Ibrahim Mustafa<sup>1\*</sup>, Dr. Lokesh L.<sup>2</sup>

### ABSTRACT

Video games have existed in our society for a long time. Much discussion has been done on the harmful consequences of video gaming, as well as the potential benefits of the same. The motivation behind the present study is to find the relation between Game Experience and Perceived Stress among young adults and to compare the levels of Perceived Stress between gamers and non-gamers. The study included 227 participants- 107 gamers and 120 non-gamers in the age range of 18-25 years. The tools used to measure the variables were The Game Experience Questionnaire- Core and Social Presence Module and The Perceived Stress Scale. Data was gathered using a purposive sampling method. Statistical procedures used were descriptive statistics, independent samples t-test and Pearson Correlation. Results indicated that there is a significant difference in the levels of Perceived Stress between gamers and non-gamers. Results also indicated that there is significant negative correlation in the scale of Competence, Immersion, Flow, Positive Affect, Empathy, Behavioral Involvement and Perceived Stress. There is a significant positive correlation between the scales of Tension, Challenge, Negative Affect and Perceived Stress. However, there is no significant relationship between Negative feelings towards others in the game and Perceived Stress.

**Keywords:** *Game Experience, Perceived Stress, Gamers, Non-gamers*

Video games can be defined as games played on electronic devices like computers, mobiles, consoles and so on. In this context, a gamer could be defined as a person who plays different kinds of video games (for example FPS, MOBA, so on) and spends at least 8 hours in a week on video gaming (Sheth, 2021). As opposed to a gamer, a non-gamer doesn't spend as much time on video gaming but can spend a few minutes to an hour or so occasionally.

Video games are not just popular among children but also among young adults. 65% of gamers in India are below the age of 25 (Navani, 2021). Although video games have existed for a long time, the game industry flourished during the pandemic. The gaming industry saw a 35% increase in sales in March 2020 itself (Analytics Insight, 2021). In India there are

<sup>1</sup>Student, Kristu Jayanti College; Asst. Professor, Kristu Jayanti College, Bengaluru, Karnataka, India

<sup>2</sup>Professor, Kristu Jayanti College; Asst. Professor, Kristu Jayanti College, Bengaluru, Karnataka, India

\*Corresponding Author

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more than 400 online gaming start-ups and according to an EY-All India Gaming Federation report, there are around 360 million gamers (as of 2020). The number of gamers is expected to grow to 510 million by 2022 and the industry will be worth \$2 billion by 2023 (Chander and Karla, 2021). The reason why video games have been so popular is because of many reasons, some of which include the need for competence, autonomy and relatedness (Reeves, 2020). To understand more about the popularity of video games, it becomes important to look at what players experience when they play games. It could be said that what they experience while playing games reinforces their gaming behaviour and hence, players come back to play more and even try different games. Hence, the gaming experience becomes important to study. Game experience is not just gameplay, but the totality of what the game is, what it affects, its presentation, its style, the interactions within the community, the nature of the community and the way a game impacts one's interpretations (Lynn, 2012). It can be defined as an ensemble of the feeling of competence and tension, immersion and flow of the game, challenge, positive and negative affect of the game on the player. Game experience can also entail the amount of behavioral involvement in the game (e.g., spending money to buy certain items in the game), empathy or negative feelings towards others in game.

Various players can have different experiences while playing video games. Some can feel relaxed, less anxious and can experience an improved mood and some can become aggressive (Čábelková et al., 2020). Previous study on the effectiveness of playing a casual video game found that it reduced physiological stress (Desai et al., 2021). This finding can be explained by the Catharsis Hypothesis, which states that people who feel stressed may benefit from releasing such feelings in non-harmful ways which may include playing violent video-games.

A previous study investigating how casual gaming compares to guided relaxation and sitting quietly in the reduction of stress among 51 participants of an average age of 25, showed that casual gaming can improve positive affect for mood more than guided relaxation and sitting quietly (Stanhope, 2016).

A study by Reinecke (2009) on 1614 participants to determine gaming as a means of reducing stress showed that they associated gaming with stress relief. He stated that a player's active engagement in the game reduces the ability to ruminate on unhelpful thoughts and aids in the recovery process. Experimental studies have also been carried out to investigate the effect of video games on the physiological responses to stress. In a study by Russoniello, O'Brien and Parks, (2009), three video games were tested for their effects on mood and physiological changes attributed to stress among 134 participants. The results indicated that playing video games had a positive impact on mood and brain function. This was evidenced by a decrease in heart rate and the result was interpreted as a reduction in stress. Other studies on gaming and stress show similar findings.

A study on assessing the potential effectiveness of playing a casual video game among undergraduate students in the USA found that it improved mood and reduced physiological stress (Desai et al., 2021). Another study by Wack and Tantleff-Dunn (2009) on 219 college-aged males showed a significant positive correlation between frequency of play and self-reported frequency of playing when bored, lonely, or stressed. The results suggested that gaming among college-aged men may provide a healthy source of socialization, relaxation, and coping. In studies with stressed individuals, playing video games has shown

to reduce negative emotions such as frustration, and participants have reported playing games for stress relief purposes (Porter & Goolkasian, 2019). Another study assessing the effect of game play on levels of stress among 100 acutely stressed participants showed decreased stress levels over time while playing both competitive and cooperative games (Roy & Ferguson, 2016). Hasan, Bègue, and Bushman (2013) studied whether playing violent video games induced stress among players. 77 participants were included in the study who were exposed to 20 minutes of a violent and a non-violent game. Results indicated that playing violent video games led to higher aggression by inducing stress. Another part of this study focuses on comparing perceived stress between gamers and non-gamers. A study by Gonzalo (2016) on studying the difference in stress response between gamers and non-gamers showed that there was no significant difference in stress response between gamers and non-gamers.

### ***Need and significance of the study***

With workload increasing because of work from home and students trying to make best use of online education, the stress is increasing as well. With a lot of concern for people's mental health during these difficult times, this study will aim to see whether playing video games and the game experience can help people cope with these difficult times. To get a clear understanding of whether gaming can be helpful, the study will also focus on comparing stress in gamers (those who play for at least 8 hours in a week) and non-gamers (those spending less than 8 hours per week). This could also lead to the development of potential interventions based on gaming for preventing or treating stress related problems.

## **METHODOLOGY**

### ***Objectives***

- To find the relationship between Game experience and Perceived stress among young adults during COVID-19
- To find the difference in Perceived Stress between gamers and non-gamers during COVID-19

### ***Hypotheses***

H<sub>0</sub>1: There is no difference in Perceived stress between gamers and non-gamers during COVID-19

H<sub>0</sub>2: There is no relationship between the dimensions of Game experience and Perceived stress among young adults during COVID-19

### ***Sample***

The sample comprised of 227 participants, both males and females- 107 gamers and 120 non-gamers. The age group was 18-25 years. Sample were taken from Bengaluru, Karnataka and Hyderabad, Telangana.

### ***Instruments***

Two measures were used in this study,

- **The Game Experience Questionnaire- Core Questionnaire and Social Presence Module (2013)**- Developed by IJsselsteijn, W. A., de Kort, Y. A. W., & Poels, K. The core questionnaire assesses Immersion, Flow, Competence, Positive and Negative Affect, Tension, and Challenge. The social presence module investigates psychological and behavioural involvement of the player with other social entities. The questionnaire was found to have Cronbach's alpha score of .7 and its internal

consistencies were found to be varying between satisfactory and good. The Core Questionnaire has 33 items and Social Presence Module has 17 items, scored on a 5-point Likert scale.

- **Perceived Stress Scale (1983)**- Developed by Sheldon Cohen. It contains 14 items that measure the degree to which situations in one's life are seen as stressful on a 5-point Likert scale. It demonstrated adequate internal consistency reliability ( $\alpha = 0.78$ ) and convergent validity.

**Procedure**

Purposive sampling was used to collect data from 227 participants. Questionnaires were prepared and arrangements were made for data collection. Data was collected through online Google forms. Informed consent was taken from the participants and the questionnaire was administered.

**RESULTS**

*Table No. 1 Mean, standard deviation, standard error and t-test ratios of Perceived Stress in non-gamers and gamers*

	Non-gamers (n=120)			Gamers (n=107)			t-ratio
	M	SD	SE	M	SD	SE	
Perceived Stress	27.2	7.6	0.7	19.8	9.1	0.87	<b>6.6*</b>

\*. Significant at 0.01 level

Table 1 shows that the mean level of perceived stress is 27.2 (SD= 7.6) among non-gamers with a standard error of 0.7. The mean level of perceived stress among gamers is 19.8 (SD= 9.1) with a standard error of 0.87. This shows that there is a significant difference in the level of Perceived Stress between non-gamers and gamers.

*Table No. 2 Correlation between Perceived Stress and the dimensions of Game Experience*

Variable	Perceived Stress
Competence	-0.53*
Immersion	-0.5*
Flow	-0.34*
Tension	0.3*
Challenge	0.48*
Negative Affect	0.44*
Positive Affect	-0.52*
Empathy	-0.5*
Negative feelings	-0.11
Behavioural Involvement	-0.55*

\*. Significant at 0.01 level

Table 2 shows that there is significant negative correlation in the scale of Competence, Immersion, Flow, Positive Affect, Empathy, Behavioral Involvement and Perceived Stress. There is a significant positive correlation between the scales of Tension, Challenge, Negative Affect and Perceived Stress. However, there is no significant relationship between Negative feelings towards others in the game and Perceived Stress.

**DISCUSSION**

Results of the present study indicate that there is a significant difference in Perceived stress between non-gamers and gamers. In studies with stressed individuals, playing video games has shown to reduce negative emotions such as frustration, and participants have reported playing games for stress relief purposes (Porter & Goolkasian, 2019). Hence, null hypothesis is rejected.

Results also indicate a significant negative correlation in the scale of Competence, Immersion, Flow, Positive Affect, Empathy, Behavioral Involvement and Perceived Stress. There is a significant positive correlation between the scales of Tension, Challenge, Negative Affect and Perceived Stress. However, there is no significant relationship between Negative feelings towards others in the game and Perceived Stress. Video games present challenges and reward you for overcoming it, which leads to feelings of competence (Lal, 2018) and feeling competent can help see situations as not very stressful. The negative correlation of immersion and flow with perceived stress can be explained by the theory of flow state. Flow state is a state wherein one's mind becomes one-pointed. This happens when we are so focused on a particular task that our mind stops generating other thoughts. This is similar to the state of meditation, which in turn is known for its stress-relieving benefits. Playing video games also releases dopamine that inhibits our nervous activity and helps us feel good and invokes positive affect in players, and when this happens, we are less likely to feel stressed when feeling such positive emotions (Lal, 2018). Previous studies on the relationship between empathy and stress have shown that higher level of distress leads to feeling less empathetic (Wahjudi et al., 2019). Increased behavioural involvement in games, like spending money on them, can boost mood and give some comfort. This can be explained by the fact that when you spend, you have reached some sort of resolution (Gravier, 2021). As games provide various challenges, not overcoming these can lead to feeling frustrated which is related to tension and stress. The feeling of not being able to complete the game's challenge or goal can lead to negative feelings like frustration and irritation, which can in turn lead to feeling stressed. It is a well-known fact about the existence of 'toxic' gamers in the gaming community. These toxic gamers are called so because they display unhealthy or hostile feelings or behaviours to others in game, or in other words, take their frustration out on others. These kind of negative feelings towards others, when expressed can lead to a decrease in the state of stress and frustration. This is explained by the catharsis hypothesis which states that expressing one's thoughts and feelings can lead to feeling better (Serrone, 2012). Hence, null hypothesis is rejected.

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***Conflict of Interest***

The author declared no conflict of interest.

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