



INVESTIGATE THE CORRELATION BETWEEN THE ADDICTIVE BEHAVIOURS OF INTERNET GAMING AND OCCUPATIONAL ACTIVITIES: A CROSS-SECTIONAL ONLINE SURVEY

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ABSTRACT

Background: There is scarce evidence about the precursors of addictive behaviours of internet gaming, other associated consequences and its effects on the occupational activities. **Aims & Objectives:** This study aimed at investigating the correlation between the addictive behaviours of internet gaming and occupational performance areas of activities of daily living, work and productive activities and play/leisure. Also, to investigate inherent and environmental various factors associated with internet gaming disorder (IGD). **Methods and Material:** A cross-sectional online survey study was conducted & developed by three authors and validated by two expert occupational therapists. Criteria for IGD as per DSM-5 were incorporated in the questionnaire. The questionnaire was shared via Google form link with the prospective participants, both males and females, between age group of 12 to 30 years through different social media applications e.g., WhatsApp, Facebook, Telegram, and Email etc. Convenient sampling through snowballing method for sample size was used. **Results:** A positive correlation was observed between total score of IGD-20 test and activities of daily living (ADL), work and play/leisure questionnaire ($r = 0.5684$, $P < 0.013847$) **Conclusion:** Addictive behaviours of internet gaming has no negative effect on participation in occupational activities.

KEYWORDS

Activities of Daily Living, Addictive Behaviours, Internet Gaming, Occupational Activities

INTRODUCTION

Lately video gaming has evolved in the past decades. Playing on console games to playing on portable devices and smartphones, technology has boomed all-round the world. Furthermore, playing has been made easier by connecting online with people around the globe. In the past decade Internet Gaming Disorder (IGD) has become a discussion of concern among the people. Diagnostic and Statistical Manual of Mental Disorders (DSM-5) has addressed IGD in their revised version, however, there is limited evidence and literature on IGD, raising the need for further research in different domains of healthcare to contribute to the available evidence^[1]. As an occupational therapist, it is significantly important to focus on the daily functions and activities which are necessary for people's health and well-being.^[2] Out of the two major types of video gaming offline and online gaming, internet has taken over the gaming world. The American Psychiatric Association (APA) has addressed IGD as a tentative disorder in the revised version of DSM-5^[3]. It is not clearly stated that IGD typically involves specific internet games, but it can also include offline games as well. The DSM-5 states that IGD is most common in male adolescents 12 to 20 years of age. According to DSM-5 there are 9 diagnostic criteria for IGD, out of which a person should fulfil at least 5 criteria within one year. The proposed symptoms of IGD as stated by DSM-5 includes (1) preoccupation, (2) withdrawal, (3) tolerance, (4) loss of control, (5) give up other activities, (6) continuation, (7) deception, (8) escape, and (9) negative consequences.^[3] Since the IGD has been one of the recent topics described in the DSM-5, the lack of research on this disorder has led the need for further studies and research to identify the prevalence rate across the countries around the world, to examine its associated biological features, to have a broader discussion on the validity of each of the nine IGD criteria, and to have a in depth look over the difficulty associated with the occupational activities of the IGD cases.

Studies around the world in few countries have been conducted in order to identify the prevalence of IGD^{[4][5]}. According to a Meta-analysis the pooled prevalence among the adolescents till 2016 was 4.6%, with male adolescents showing higher prevalence of 6.8% than the females with 1.3%.^[6] A study conducted in India among high school children has revealed the overall prevalence to be 3.50% among the school children.^[7] As per the statistical data the demographics show that the 1.5% addicts fall under the age group of 13-16 years^[5]. The average male and female gamers are 33 years and 37 years old respectively^[7]. As per the statistics in the fiscal year, there were 300 million gamers online in India, which is estimated to go up to 440

million by the year 2022. As the online and offline gamers are increasing day by day in India and due to lack of knowledge about the effects of IGD on people's day to day life^[8], this study aimed at investigating the correlation between the addictive behaviours of internet gaming and occupational performance areas of activities of daily living, work and productive activities and play/leisure. Secondary objectives were to investigate inherent and environmental various factors associated with IGD.

METHODS

An online, cross-sectional survey design was used to conduct the research. An online survey questionnaire was developed by three authors and validated by two expert occupational therapists. Criteria for IGD as per DSM-5 were also incorporated in the questionnaire. The study was conducted adhering to the principles of 'Declaration of Helsinki'. Electronic written informed consent was obtained from all the adolescents and adults of ages 12 to 30 years. The participants were made aware about the nature of the research and purpose for which their data will be used. The anonymity or confidentiality was maintained throughout the study procedure.

The questionnaire was shared with the participants via Google Form link through various social media applications (for e.g., WhatsApp, Facebook, Telegram, etc.). Convenient sampling was done and snowballing method was used in order to recruit participants for the study. The data was collected over a time period of one month. The inclusion criteria in order to choose the participants with relevant data were: (a) Adolescents and adults from 12 to 30 years of age. (b) Individuals who were gaming specifically through the use of internet (i.e., who download the game through internet and play online or/and offline or both). (b) Who are online and offline gamers. (c) Males and females. (d) Who play games at least 7 hours per week. Participants who were excluded from the study were: (a) Individuals diagnosed with any psychiatric or neurological disorder.

A questionnaire was prepared which enabled the investigator to identify the precursors/behaviour which might lead to IGD and another questionnaire enabled to identify to which level the participants were engaged in the occupational or functional activities. The first section of the online survey included questions on basic demographics of the participants and their game play and questions on the precursors/ behaviours which might lead to IGD. The second section was the IGD-20 test which helped the investigator to further identify the IGD diagnostic criteria and identify suspected cases of

IGD. The third section questions identify the engagement of the participants in the daily occupational or functional activities.

Statistical Analysis

All calculations were performed using Microsoft Excel Version 2019 in a spreadsheet which was prepared and validated for the study to avoid errors. Data analysis was done using window based 'IBM SPSS Statistics 23'. Pearson's correlation coefficient was identified for precursor questionnaire, IGD-20 test, and ADL/work/leisure questionnaire. The level of significance was set at $P < 0.05$ and a two-tailed analysis was done.

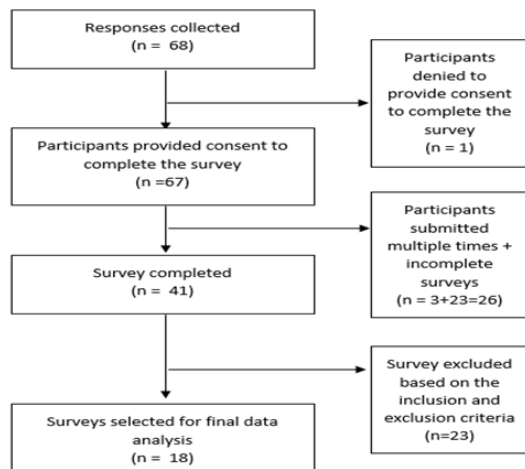


Figure 1: Flow Chart of Participants Recruitment

RESULTS

In the present study data was collected from online survey through Google forms. The responses were collected from 68 participants out of which 1 denied to provide consent to complete the survey and rest 67 gave the consent. Among the 67 participants 41 participants completed the survey, 3 participants filled the survey twice, and 23 participants submitted incomplete forms. After the data was analysed, only 18 participants met the inclusion criteria of minimum hours of engaging in gaming per week. The data was collected over a time period of one month. Hence by the end of August 2020, 18 completed surveys were collected for further analysis.

The data generated it can be inferred that the percent of males 67% (12) playing video games is higher than that of females 33% (6). Furthermore, 78% of the total participants play both online and offline video games and 67% of the total participants have been playing video games for 1 year and over. Majority of the participants prefer mobile as their gaming device. Among the different genre of the games, almost 39% prefer action games which is the highest among different genres.

Table 1: Participants' Demographics

Variable	Category	N=18 n (%)
Gender	Male	67% (12)
	Female	33% (6)
Type of gaming	Online	17
	Offline	5
	Both	78
Playing game since how long?	1-2 months	22
	3-6 months	5
	7-12 months	6
	1 year and more	67
Gaming device	Computer	6
	Gaming console	11
	Mobile device	83
Genre of game	Action	39
	Adventure	5
	Others (e.g., cards, sports, word, etc.)	22
	Puzzle/Board	17
	Strategy	17
Type of family	Alone	5
	Joint family (6 to 10 members)	17
	Nuclear family (5 or less members)	78

The Pearson's correlation coefficient 'r' between Precursor questionnaire and IGD-20 Test is $r(16) = -0.1765$. Although technically a negative correlation, the relationship between the variables is only weak. Furthermore, the P-value is 0.483554, which shows that there is no significant correlation ($P > 0.05$). The value of 'r' between IGD-20 test and ADL questionnaire is $r(16) = 0.5684$. This suggests that there is a moderate positive correlation between IGD-20 test score and ADL questionnaire scores. The P-value is 0.013847, which shows there is significant correlation ($P < 0.05$).

Table 2: Correlation between IGD Score and ADL

		Precursor	IGD Score	ADL
Precursor	Pearson Correlation	1	-0.177	-0.132
	P (2-tailed)		0.483	0.602
	N	18	18	18
IGD	Pearson Correlation	-0.177	1	0.568*
	P (2-tailed)	0.483		0.014
	N	18	18	18

*Correlation is significant at the $P < 0.05$ level (2-tailed test).

IGD: internet gaming disorder; ADL: activities of daily living;

DISCUSSION

IGD has been an emerging topic of focus in the modern world. The revolutionary change in the electronic world has led to easy access to technology in every person's life, which may ultimately result into a path of addiction towards gaming. In a recent review Naskar et al., (2016) suggested that even though there is emerging literature on IGD from different geographical regions, there are limited relevant literature available from India^[8]. From Naskar et al.'s review it can be inferred that there is a need for evidence in this area of interest with more robust and high-quality research. In a cross-sectional study Undavalli et al. (2020) identified that the prevalence rate in specific state of India to be as 3.50% among the school children^[13]. However, there is requirement of further research which includes large scale population and different geographical locations across India. From the available limited evidence, it can be suggested that there is no research identifying the effects of IGD on people's daily living activities. Hence, this study aimed to identify the relation between IGD and ADL. Furthermore, this study also investigated the relation between the underlying precursors and IGD.

The data collected suggests that number of males playing video games is higher than that of females. Furthermore, the Pearson's correlation suggests that is a negative correlation between the precursor questionnaire and IGD-20 test. Hence, further investigation is required in order to identify what are the major underlying issues or causes which leads to IGD. In contrast, the Pearson's correlation coefficient suggests that there is positive significant correlation between IGD-20 test and ADL questionnaire. From this it can be inferred that Internet Gaming Addiction does not have a negative impact on one's daily living activities. Even though, statistically there is a positive significant correlation between IGD-20 test and ADL questionnaire, the individual scores suggests that only 3 participants show higher values beyond the cut-off point for IGD-20 test. Hence, this poses a limitation in the proposed research question, further limiting the generalizability of the findings.

The present study has several limitations. All the questionnaire used were self-assessment questionnaire, no clinical interviews were undertaken, which affected the accuracy of the data collected. Furthermore, the number of participants who completed the survey and could be included based on the inclusion criteria were less and hence the findings cannot be generalized. Further research using large number of participants from different geographical location in India is required to investigate the correlation between IGD and ADL.

CONCLUSION

Even though statistically there is significant positive correlation between IGD and ADL, further research with large number of participants is required to provide more accurate evidence in support of the proposed research question. This study concluded that the addictive behaviours of internet gaming have no negative effect on involvement in occupational activities. However, further high-quality methods research should be conducted in order to investigate further in this field of interest.

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