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Virtual Worlds, Real Worries: Online Gaming and Mental Health Challenges in Adolescents

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ABSTRACT

This study investigates the prevalence and psychological impact of Internet Gaming Disorder (IGD) among adolescents in Andhra Pradesh, India. Utilizing a cross-sectional design with 845 participants aged 14-21 years, the study explores the relationships between IGD, depression, anxiety, and stress. Data were collected using the Internet Gaming Disorder Scale–Short Form (IGDS9-SF) and the Depression, Anxiety, and Stress Scale-21 (DASS-21). Findings indicate a significant prevalence of IGD, particularly among males and rural adolescents, correlating strongly with psychological distress. Late adolescents (18-21 years) exhibit higher IGD rates, attributed to increased academic pressures and autonomy. The study underscores the need for targeted interventions to address the intertwined issues of IGD and mental health among Indian adolescents, emphasizing the influence of demographic factors and the significant impact of gaming on psychological well-being. Results highlight the importance of developing comprehensive strategies for prevention and support to mitigate the adverse effects of excessive gaming and improve adolescent mental health outcomes.

KEYWORDS: Adolescents, Internet Gaming Disorder, Depression, Anxiety, Stress, Psychological Distress.

Online gaming refers to playing video games over the internet, often involving multiple players interacting in virtual environments. These games range from simple, single-player experiences to complex, multiplayer platforms where players can engage in competitive or cooperative gameplay. Online gaming is characterized by its interactive nature, real-time communication, and often persistent game worlds that continue evolving even when players are offline. While online gaming can provide entertainment, social interaction, and cognitive benefits, it can also lead to problematic behaviors like Internet Gaming Disorder (IGD).

IGD has emerged as a significant mental health concern globally, particularly among adolescents, who are avid users of digital technology and online gaming platforms. In India, the rapid expansion of internet access and the proliferation of affordable smartphones and gaming consoles have led to a significant increase in IGD among adolescents. Adolescents are in a critical developmental stage, making them vulnerable to various psychological issues.

IGD is strongly related to total psychological distress, encompassing depression, anxiety, and stress. Excessive engagement in online gaming can disrupt daily routines, contribute to social isolation, and exacerbate emotional and psychological challenges, thereby increasing overall levels of distress. This relationship underscores the impact of IGD on adolescents' mental health, highlighting the need for interventions addressing both gaming behaviors and associated psychological issues.

Growing Mental Health Crisis Among Adolescents of India

Adolescence is a critical developmental period characterized by significant physical, emotional, and social changes. According to the World Health Organization (WHO, 2021), adolescence encompasses individuals aged 10-19 years. Developmental psychology further classifies this period into middle adolescence (14-17 years) and late adolescence (18-21 years). In the context of India, adolescents represent a substantial portion of the population. According to the United Nations International Children's Emergency Fund (UNICEF, 2021), India is home to 253 million adolescents, making it one of the largest adolescent populations in the world. This demographic significance underscores the importance of addressing adolescent health and well-being, particularly in relation to emerging concerns such as Internet Gaming Disorder (IGD), which can profoundly impact mental health during these formative years (UNICEF, 2021).

IGD is a condition characterized by excessive or compulsive use of online games, which can interfere with daily life and responsibilities. IGD is marked by symptoms such as preoccupation with gaming, withdrawal symptoms when not playing, tolerance (needing to spend more time playing), and continued use despite negative consequences. The interactive and often addictive nature of online gaming, combined with features like rewards, achievements, and social elements, can contribute to the development of IGD, particularly among adolescents who may be more susceptible to these influences due to their developmental stage and social dynamics.

IGD has become increasingly prevalent among adolescents in India, driven by the widespread availability of affordable smartphones and internet access. Popular games like PUBG Mobile, Free Fire, Call of Duty: Mobile, Candy Crush, Angry Birds, Ludo, Rummy Circle, Subway Surfers etc. have captivated millions of young players, often leading to excessive gaming habits. The addictive nature of these games, designed to maximize player engagement through reward mechanisms and social interaction, exacerbates the risk of IGD. Adolescents with IGD may experience a range of adverse effects, including poor academic performance, social withdrawal, disrupted sleep patterns, and increased levels of depression, anxiety, and stress. These negative impacts can hinder their overall development and well-being, making it essential to address this growing concern through awareness and intervention strategies (Kuss & Griffiths, 2012; Prakash et al., 2021).

Depression, anxiety, and stress are significant mental health issues among Indian adolescents, contributing to considerable distress and affecting their overall well-being. Stress levels are also notably high, with many adolescents experiencing academic pressure, familial expectations, and social challenges. These mental health issues are exacerbated by factors such as urbanization, increased academic competition, and changes in family structures. The National Mental Health Survey of India (2015-16) highlights that mental health disorders in

children and adolescents are a growing concern, necessitating immediate attention and intervention to prevent long-term adverse effects (Gururaj et al., 2016; Malhotra & Patra, 2014).

The DASS-21, developed by Lovibond and Lovibond (1995), specifically categorizes depression, anxiety, and stress into a single measure of "total distress." This categorization is based on the understanding that these emotional states are closely related and often co-occur, reflecting an overall level of psychological distress. By combining the scores for depression, anxiety, and stress, the DASS-21 provides a comprehensive assessment of general psychological distress. High levels of total distress can significantly impact adolescents' academic performance, social relationships, and overall well-being. In India, the prevalence of mental health issues among adolescents has been rising, necessitating a comprehensive approach to understand and address these challenges (Sharma et al., 2020).

Impact of Online Gaming on Adolescent Mental Health

The relationship between Internet Gaming Disorder (IGD) and psychological distress among Indian adolescents is increasingly evident, with excessive gaming linked to higher levels of depression, anxiety, and stress. Adolescents with IGD often exhibit withdrawal symptoms, social isolation, and academic difficulties, all of which contribute to heightened distress. Studies have shown that the compulsive nature of gaming can exacerbate existing mental health issues or lead to new ones, creating a vicious cycle of dependency and emotional turmoil. A study conducted by Satghare et al. (2016) highlights that adolescents with IGD are more likely to experience significant psychological distress, manifesting as depressive symptoms and elevated anxiety levels. The National Institute of Mental Health and Neurosciences (NIMHANS) also underscores the growing concern of IGD and its impact on mental health, emphasizing the need for early intervention and support systems to mitigate these adverse effects (NIMHANS, 2018).

Exploring the relationship between Internet Gaming Disorder (IGD) and psychological distress among Indian adolescents is crucial given the increasing prevalence of digital gaming and its potential impact on mental health. With India having one of the largest adolescent populations globally, understanding how IGD contributes to depression, anxiety, and stress is essential for public health. Adolescents are at a developmental stage where they are particularly vulnerable to behavioral addictions, and the psychological distress associated with IGD can have long-term implications on their academic performance, social relationships, and overall well-being. Understanding these associations is crucial for developing targeted interventions and preventive measures to mitigate the adverse effects of excessive gaming and promote mental well-being among Indian adolescents.

Despite the growing concern, there is limited research focusing on this issue within the Indian context. Therefore, this study aims to fill this gap by providing empirical evidence on the extent of IGD and its psychological repercussions, thereby informing policymakers, educators, and mental health professionals to develop targeted interventions and support mechanisms for affected adolescents.

OBJECTIVES

1. To examine the prevalence of Internet Gaming Disorder (IGD) and the levels of psychological distress (depression, anxiety, and stress) among adolescents in relation to various demographic variables.

2. To investigate the relationship between IGD and psychological distress (depression, anxiety, and stress) among adolescents.
3. To investigate the predictive relationship between IGD and depression, anxiety, stress, and total distress among adolescents.

HYPOTHESES

1. There are significant differences in the prevalence of Internet Gaming Disorder (IGD) and the levels of psychological distress (depression, anxiety, and stress) among adolescents across different demographic variables.
2. There is a significant positive correlation between IGD and psychological distress (depression, anxiety, and stress) among adolescents.
3. IGD is a significant predictor of psychological distress, with higher levels of IGD associated with increased levels of depression, anxiety, stress, and total distress in adolescents.

METHOD

Sample

The sample for this cross-sectional study consists of 845 adolescents from different cities of Andhra Pradesh, India. The age distribution includes 387 participants aged 14-17 years and 458 participants aged 18-21 years. Gender distribution comprises 334 males and 511 females. Additionally, 228 participants reside in rural areas, while 617 are from urban areas.

Procedure

A stratified random sampling method was employed to ensure representation across key demographic variables, including age, gender and area of residency. All necessary permissions were obtained from the concerned authorities, and strict confidentiality was maintained throughout the data collection process.

Tools used

Internet Gaming Disorder Scale–Short Form (IGDS9-SF) is a psychometric tool used to evaluate the presence and severity of Internet Gaming Disorder (IGD) according to DSM-5 criteria. It consists of 9 items and responses are rated on a Likert scale, with higher scores indicating greater severity of IGD. The IGDS9-SF is well-validated and reliable for assessing IGD, particularly among adolescents (Pontes & Griffiths, 2015).

Depression, Anxiety, and Stress Scale-21 (DASS-21) is a widely used psychometric tool designed to assess the severity of symptoms related to depression, anxiety, and stress. It consists of 21 items, with 7 items dedicated to each of the three dimensions. Each item is rated on a 4-point Likert scale. Higher scores indicate greater severity of symptoms. The DASS-21 is known for its reliability and validity in various populations, including adolescents, and provides a comprehensive assessment of these psychological conditions (Lovibond & Lovibond, 1995).

Demographic sheet includes sections for recording age, with categories of 14-17 years and 18-21 years, to differentiate between middle and late adolescents. Gender is recorded as Male and Female. The area of residency is categorized as Rural or Urban to examine geographical influences.

Statistical Analysis

Statistical analysis was conducted using IBM SPSS Version 27. Descriptive statistics summarized demographics and key variables, while t-tests compared IGD and psychological distress across groups. Pearson's correlation assessed relationships between variables, and regression analysis evaluated the predictive impact of IGD on depression, anxiety, stress, and total distress.

RESULTS

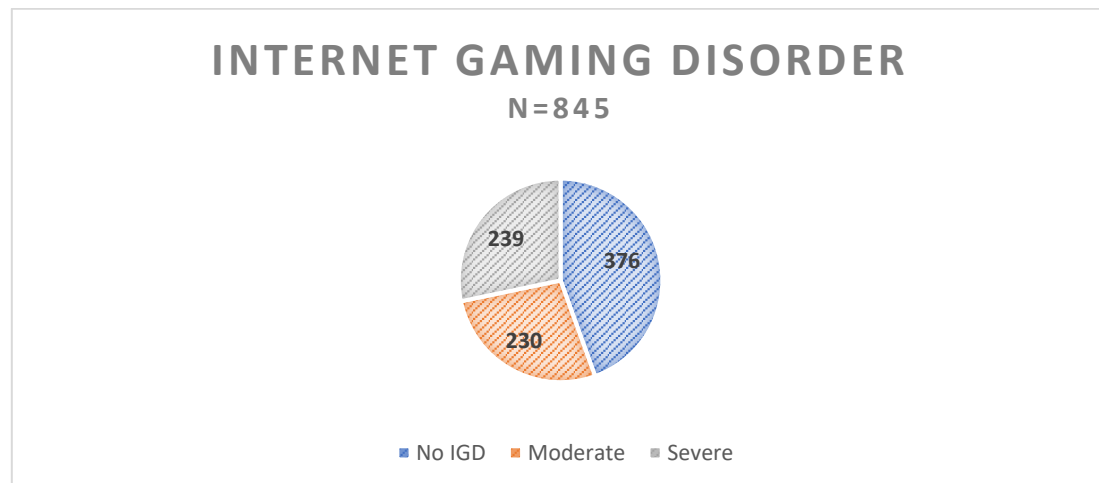


Figure 1. Severity Levels of Internet Gaming Disorder (IGD) Based on IGDS9-SF Scores

NOTE. Severity levels based on IGDS9-SF scores: No IGD (<14), Moderate IGD ($14-21$), Severe IGD (>21) (Marzilli et al., 2020).

Figure 1, shows the distribution of Internet Gaming Disorder (IGD) severity among participants. Out of 845 individuals, 376 (44.5%) were categorized as having no IGD, 230 (27.2%) had moderate IGD, and 239 (28.3%) were classified as having severe IGD. This distribution highlights the varying levels of IGD severity within the sample, with a notable proportion experiencing severe symptoms.

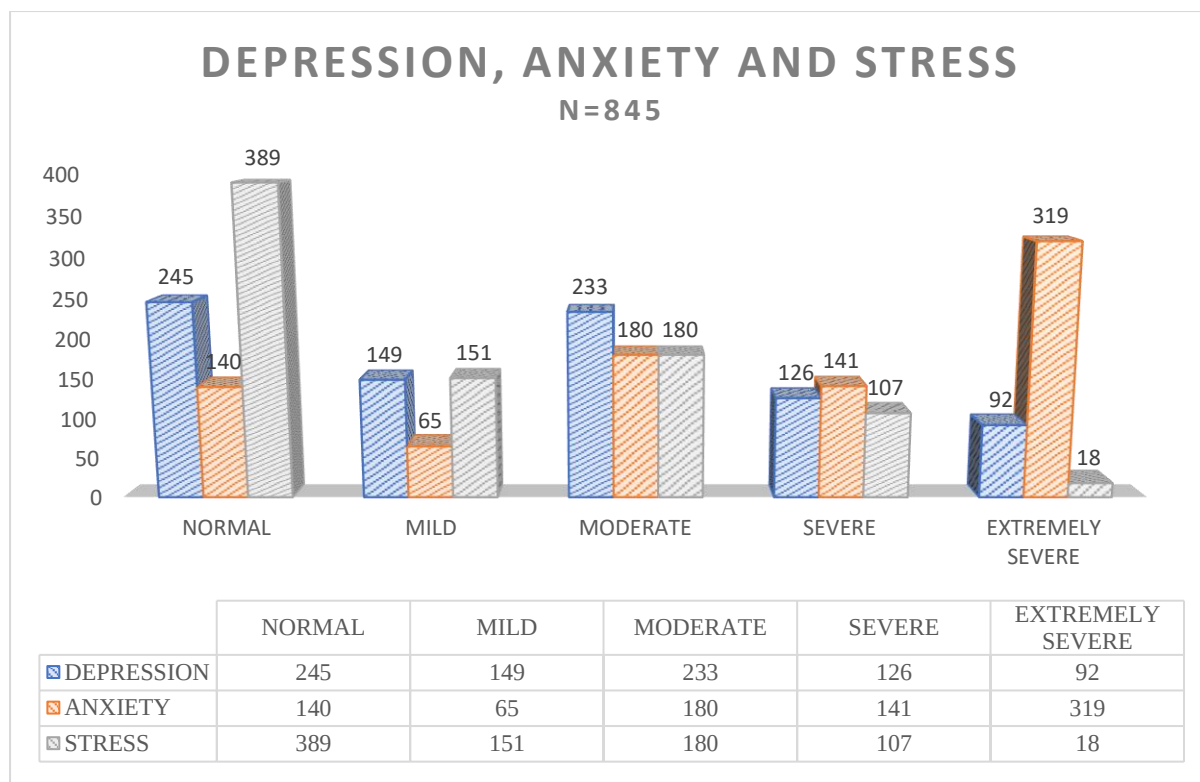


Figure 2. Categories of Depression, Anxiety, and Stress based on DASS-21 scores

NOTE. Categorization for Depression, Anxiety, and Stress in the DASS-21 is based on the manual by Lovibond and Lovibond (1995).

Figure 2, displays the distribution of depression, anxiety, and stress severity among the sample of 845 participants. For depression, 245 individuals (29.0%) were classified as having normal levels, 149 (17.6%) were mild, 233 (27.6%) moderate, 126 (14.9%) severe, and 92 (10.9%) extremely severe. Anxiety severity revealed that 140 participants (16.6%) had normal levels, 65 (7.7%) were mild, 180 (21.3%) moderate, 141 (16.7%) severe, and 319 (37.8%) extremely severe. Stress levels showed that 389 individuals (46.0%) had normal levels, 151 (17.9%) were mild, 180 (21.3%) moderate, 107 (12.7%) severe, and 18 (2.1%) extremely severe. This distribution indicates varying levels of psychological distress across the sample.

Table 1: Age, Gender and Area of Residency Differences in IGD and Psychological Distress among Adolescents

	DV	Group 1 N	Mean	SD	Group 2 N	Mean	SD	t	p
AGE	IGD	14-17 [N=387]	16.50	7.33	18-21 [N=458]	18.23	7.39	-3.411***	.000
	D		14.66	8.89		15.38	9.54	-1.132	.258
	A		15.83	8.95		16.80	8.92	-1.563	.118
	S		15.79	8.43		16.36	8.23	-.991	.322
	TD		46.28	22.76		48.54	23.852	-1.399	.162
GENDER	IGD	MALE [N=334]	20.46	7.64	FEMALE [N=511]	15.46	6.55	10.139***	.000
	D		16.28	9.19		14.25	9.21	3.120**	.002
	A		16.95	8.58		15.97	9.15	1.564	.188
	S		16.74	8.65		15.68	8.08	1.087	.071
	TD		49.96	23.46		45.90	23.19	2.477*	.013

AREA	IGD	RURAL [N=228]	19.15	7.97	URBAN [N=617]	16.80	7.09	3.906***	.000
	D		16.21	9.47		14.63	9.13	2.178*	.030
	A		17.26	9.86		16.02	8.56	1.680	.094
	S		17.31	8.89		15.65	8.06	2.463*	.014
	TD		50.78	25.79		46.30	22.31	2.323*	.021

Significant values: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

NOTE. IGD=Internet Gaming Disorder; D=Depression; A=Anxiety; S=Stress; TD=Total Distress; Welch's t-test used for area of residency due to unequal sample sizes (i.e., group size ratio $> 1:2$).

Table 1, Independent samples t-test revealed significant age, gender and area of residency differences in dependent variables among adolescents.

Adolescents aged 18-21 years ($M=18.23$, $SD=7.399$) scored significantly higher on IGD than those aged 14-17 years ($M=16.50$, $SD=7.330$), $t(843)=-3.411$, $p=.001$. However, no significant differences were found in depression, anxiety, stress and total distress across age groups.

Males ($M=20.46$, $SD=7.641$) had significantly higher IGD scores than females ($M=15.46$, $SD=6.554$), $t(843)=10.139$, $p<.001$. For depression, males ($M=16.28$, $SD=9.194$) scored higher than females ($M=14.25$, $SD=9.212$), $t(843)=3.120$, $p=.002$. Total distress was significantly higher in males ($M=49.96$, $SD=23.468$) than females ($M=45.90$, $SD=23.195$), $t(843)=2.477$, $p=.013$. However, no significant differences were found in anxiety and stress across genders.

Rural adolescents ($M=19.15$, $SD=7.97$) scored significantly higher on IGD compared to urban adolescents ($M=16.80$, $SD=7.09$), Welch's $t(367.888)=3.906$, $p<.001$. Rural adolescents ($M=16.21$, $SD=9.47$) scored higher depression scores than Urban adolescents ($M=14.63$, $SD=9.13$), Welch's $t(392.597)=2.178$, $p=.030$. Rural adolescents ($M=17.31$, $SD=8.896$) scored higher stress scores than Urban adolescents ($M=15.65$, $SD=8.068$), Welch's $t(373.220)=2.463$, $p=.014$. Total distress was significantly higher in rural adolescents ($M=50.78$, $SD=25.790$) than in urban adolescents ($M=46.30$, $SD=22.31$), $t(359.841)=2.323$, $p=.021$. However, no significant differences were found in anxiety across rural and urban residents.

Table 2: Pearson Correlation Coefficients Among Internet Gaming Disorder and Psychological Distress Variables

	INTERNET GAMING DISORDER	DEPRESSION	ANXIETY	STRESS	TOTAL DISTRESS
INTERNET GAMING DISORDER	1				
DEPRESSION	.352**	1			
ANXIETY	.286**	.639**	1		
STRESS	.325**	.673**	.685**	1	
TOTAL DISTRESS	.364**	.880**	.880**	.884**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2, Pearson's correlation analysis revealed significant positive correlations among IGD, depression, anxiety, stress, and total distress among adolescents. IGD was significantly

correlated with depression ($r=.352$, $p<.01$), anxiety ($r=.286$, $p<.01$), stress ($r=.325$, $p<.01$), and total distress ($r=.364$, $p<.01$).

Table 3: Regression Analysis of Internet Gaming Disorder (IGD) Predicting Depression, Anxiety, Stress, and Total Distress Among Adolescents

IGD	R	R ²	F	B	S. E.	β	t	p
D	.352	.124	119.052	.439	.040	.352	10.911***	.000
A	.286	.082	75.004	.345	.040	.286	8.660***	.000
S	.325	.106	99.684	.365	.037	.325	9.984***	.000
TD	.364	.133	129.121	1.149	.101	.364	11.363***	.000

Significant values: *** $P<0.001$, ** $P<0.01$, * $P<0.05$.

NOTE. IGD=Internet Gaming Disorder; D=Depression; A=Anxiety; S=Stress; TD=Total Distress.

Table 3, regression analysis indicates that Internet Gaming Disorder (IGD) significantly predicts depression, anxiety, stress, and total distress among adolescents. The results shows that IGD accounts for 12.4% of the variance in depression, 8.2% in anxiety, 10.6% in stress, and 13.3% in total distress, highlighting its substantial impact on these psychological outcomes. The standardized beta coefficients (β) reveal moderate effect sizes, with IGD having the strongest effect on total distress ($\beta = .364$) and the weakest on anxiety ($\beta = .286$). The significant F-tests and t-tests ($p < .001$) across all models confirm that IGD is a robust predictor of psychological distress, emphasizing its overall negative impact on adolescent mental health.

DISCUSSION

Figure 1, illustrate the distribution of Internet Gaming Disorder (IGD) among the participants. The data show that a significant portion of the sample exhibits varying levels of severity, with a noteworthy number of individuals experiencing severe symptoms. This suggests that IGD is a prevalent issue within the study population, potentially reflecting broader trends in adolescent gaming behavior and its associated risks.

In terms of psychological distress, Figure 2, highlight a diverse range of severity levels across depression, anxiety, and stress among the participants. While a substantial portion of the sample displays normal levels of psychological health, there are also considerable numbers who experience mild to extremely severe symptoms. This variability underscores the presence of significant psychological distress in the adolescent population, indicating that mental health concerns are widespread and require attention.

Table 1, IGD is observed to be higher in late adolescence (18-21 years) compared to middle adolescence (14-17 years) due to several factors. Late adolescents often face increased academic pressures and uncertainties related to future career prospects, which can lead to higher stress levels and a greater propensity to seek escapism through online gaming. Additionally, this age group typically experiences more autonomy and less parental supervision, providing greater opportunities for extended gaming sessions. Peer influence and socialization through online gaming platforms also play a significant role during late adolescence. A study by Prakash et al. (2021) supports these findings, indicating that late adolescents are more susceptible to IGD due to the interplay of academic stress, social dynamics, and greater access to digital devices.

Regarding gender, results revealed that IGD, depression, and total distress are found to be higher in male adolescents due to several cultural and social factors. Males typically have greater access to digital devices and more freedom to engage in online activities, including gaming, leading to higher rates of IGD. Additionally, societal expectations and norms often discourage males from expressing emotions or seeking help for mental health issues, which can exacerbate symptoms of depression and overall distress. Studies, such as those by Choudhury et al. (2020) and Dasgupta and Das (2019), highlight that Indian males are more prone to gaming addiction and associated mental health problems due to these cultural pressures and the increased likelihood of using gaming as a coping mechanism.

In terms of Area of Residency, results showed that IGD, depression, stress, and total distress are found to be higher among rural adolescents due to several socio-economic and environmental factors. Rural areas often have limited recreational and social opportunities, leading adolescents to turn to online gaming as a primary source of entertainment and social interaction. The lack of mental health resources and awareness in rural regions exacerbates the problem, as adolescents struggling with emotional and psychological issues have fewer avenues for support. Additionally, the socio-economic challenges and pressures associated with rural life, such as poverty and educational difficulties, contribute to higher levels of stress and distress. A study by Singh and Misra (2021) supports these findings, showing that rural adolescents in India exhibit higher rates of gaming addiction and psychological distress due to these compounded factors.

Table 2, Correlation analysis revealed significant positive correlations among Internet Gaming Disorder (IGD), depression, anxiety, stress, and total distress among adolescents, indicating that higher levels of IGD are associated with increased psychological distress. These relationships can be attributed to several factors. Excessive gaming often leads to social isolation, disrupted sleep patterns, and reduced physical activity, all of which can contribute to mental health issues. Adolescents with IGD may experience feelings of guilt and low self-esteem, exacerbating symptoms of depression and anxiety. Furthermore, the compulsive nature of gaming can interfere with daily responsibilities and academic performance, leading to increased stress. A study by Kim et al. (2019) supports these findings, demonstrating that adolescents with higher IGD scores also report higher levels of depression, anxiety, and stress, highlighting the interconnected nature of these issues.

Table 3, IGD significantly predicts various forms of psychological distress among adolescents, including depression, anxiety, stress, and total distress. The analysis highlights that IGD has a substantial impact on these psychological outcomes, with the strongest effect observed on total distress. The statistical significance across all models confirms IGD's role as a robust predictor of mental health issues, emphasizing its overall negative influence on adolescent well-being. Research supports the significant role of Internet Gaming Disorder (IGD) in predicting various forms of psychological distress, including depression, anxiety, and stress. Studies have consistently shown that excessive gaming can lead to increased psychological problems, reinforcing the findings of this analysis (Kuss & Griffiths, 2012; Weinstein & Lejoyeux, 2015). These results underscore the urgent need for targeted interventions to address IGD and its associated mental health impacts.

CONCLUSION

Internet Gaming Disorder (IGD) presents a significant challenge among adolescents in India, with its prevalence varying across different demographic groups. Late adolescents (18-21 years) exhibit higher IGD rates due to academic pressures and increased autonomy. Males are more prone to IGD, depression, and total distress because of cultural norms and greater access

to digital devices. Rural adolescents face higher levels of IGD and psychological distress due to socio-economic challenges and limited mental health resources. The positive correlations among IGD, depression, anxiety, stress, and total distress underscore the intertwined nature of these issues, with excessive gaming contributing to social isolation, disrupted sleep, and emotional problems. The regression analysis reveals IGD's significant impact on mental health, especially on total distress, confirming it as a strong predictor of adolescent psychological issues. Addressing IGD among Indian adolescents requires a multifaceted approach, considering the various demographic factors and the significant impact of gaming on mental health.

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CONFLICT OF INTERESTS

The author declared no conflict of interests.