

Original Research

Received 24 March 2026

Revised 28 April 2026

Accepted 18 May 2026

Natural Resources for Human Health 2026, Vol. 6 (2s): 673–681

KEYWORDS:

Video Game, Addiction, Self-Esteem, Elementary School Students, Mizoram, Kerala, Quality Education, Sustainable living, mental wellbeing.

Self-Esteem and Video Game Addiction of Elementary School Students: Prospective cohort survey of Mizoram and Kerala

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ABSTRACT: The majority of research examining the connection between video game addiction and self-esteem discovers a substantial one, however the effect size indicated in each study has differed. Not only should a synthesis provide an overall impact size, but it should also look into, measure, and weigh any effect size variance and its consequences. In the context of this review, for instance, comparing the impact sizes of the video game addiction and the link between self-esteem across studies might reveal which populations are more vulnerable, allowing for more effective targeting of treatments. When deciding whether to target self-esteem as a risk factor in gaming addiction therapies, meta-analyses can offer an overall summary impact.

The present study aims to increase awareness among upper primary school students in Kerala and Mizoram about the potential challenges caused by video game addiction and its impact on self-esteem. The study collected data using a normative survey approach and a correlational research methodology. All elementary school students between the ages of nine and fourteen who are enrolled in upper primary classes at different public and private schools in Kerala and Mizoram are taken into consideration. Descriptive statistics, mean, standard deviation, one-way ANOVA, independent sample t-tests, and post-hoc analyses were performed on the data in order to identify any significant differences between video game addiction and self-esteem. The study found that most pupils had a strong feeling of self-worth and that a significant portion of the students, particularly those in Mizoram, were addicted to video games. Mizoram appeared to have a higher prevalence of severe video game addiction and self-esteem, whereas Kerala rated lower in these areas.

1. INTRODUCTION

Since the 1970s, video games have become an integral element of modern culture (Turan, 2021). The early days of video games were for children's enjoyment and entertainment, but that is no longer the case. Nobody can categorise video games into a single age group or gender; everyone enjoys playing them because of the appealing animation and excellent background and sound quality. Children's entertainment equipment and preferences have changed with the development of technology. Many plays and physical toys are replaced by computers and video games. The latest video games possess more stimulating visual and auditory effects, which will cause individuals to spend an excessive amount of their time on video games.

The degree of video game addiction is related to personality traits such as low self-esteem, low self-efficacy, anxiety, and aggression, as well as clinical symptoms such as depression and anxiety (von der Heiden et al., 2019). Self-esteem is significantly influenced by our experiences of success and failure in life. Self-esteem is regarded as a global positive or negative assessment,

a personality trait characterized by considerable stability from one situation to the next. Self-esteem creates self-image. Students with high self-esteem take risks more easily than those with low self-esteem. Low self-esteem has many different manifestations; withdrawal, depression and lack of self-confidence are all symptoms of low self-esteem. Many students express anger and frustration because they do not complete certain tasks easily or efficiently. When these feelings are turned inward, they reinforce the feeling of low self-esteem.

When children give so much of their lives to these virtual worlds, children are missing critical social experiences in the real world that help them to develop as social beings. Gaming addiction in children and adolescents has been associated with risky online behaviour, such as cyberbullying, in which the perpetrator causes malicious, repetitive, and hostile harm to individuals or groups over the internet. The addictive gaming has been associated with anxiety, depression, social phobia/anxiety, low social competence, low self-esteem, sleeping disorders and loneliness (Andre et al., 2020). Students who have low self-esteem are more likely to struggle academically, be more susceptible to social pressure, and have mental health problems including depression and anxiety. Therefore, it is essential in educational settings to comprehend the elements that affect self-esteem and to put methods in place to promote healthy self-esteem.

Video Game Addiction

Recent literature indicates that video game addiction has emerged as a significant behavioural and public health concern, particularly among adolescents and young adults, owing to the rapid expansion of digital gaming platforms and increased accessibility. Research has consistently examined the psychological, social, and behavioural factors associated with problematic gaming while also highlighting methodological considerations in understanding the phenomenon.

Niu et al. (2022) examined video game addiction among female college students during the COVID-19 pandemic by exploring the relationship between relational victimisation, social anxiety, parasocial relationships with virtual characters, and video game addiction. Their findings demonstrated that relational victimisation was positively associated with video game addiction. Furthermore, both social anxiety and parasocial relationships acted as independent as well as sequential mediators, suggesting that interpersonal victimisation may indirectly contribute to problematic gaming through adverse psychological experiences and stronger emotional attachment to virtual characters. The study also offered recommendations for addressing video game addiction in the unique context of pandemic-related social isolation (Niu et al., 2022).

The growing body of evidence on online gaming has also been critically examined through systematic reviews. Griffiths (2022), while reviewing the systematic review conducted by Rosendo-Rios et al. (2022), argued that the existing evidence may not provide a comprehensive understanding of online gaming addiction among children and young people. The review noted that several relevant studies were likely excluded because of limited search strategies and the omission of important keywords such as adolescent, video game addiction, and excessive gaming. Moreover, the inclusion of participants up to 26 years of age potentially reduced the specificity of findings related to children and adolescents. Consequently, Griffiths (2022) suggested that current systematic evidence should be interpreted cautiously and highlighted the need for more comprehensive research examining problematic gaming behaviours among younger populations.

The association between video game addiction and neurodevelopmental disorders has also received increasing scholarly attention. Blasco-Fontecilla et al. (2023) investigated the prevalence of Internet Gaming Disorder (IGD) among children and adolescents diagnosed with Attention Deficit Hyperactivity Disorder (ADHD). Using the ADITEC-V assessment, the study reported that approximately one-quarter of the participants met the criteria for IGD. Individuals identified with IGD demonstrated earlier exposure to the internet, smartphones, and video games compared to those without the disorder. Although impulsivity emerged as a significant risk factor for IGD, the study did not find any association between gaming disorder and poor academic performance. The authors emphasized the importance of early identification, preventive interventions, and further investigation into effective treatment strategies for individuals with ADHD who are vulnerable to problematic gaming (Blasco-Fontecilla et al., 2023).

Complementing these findings, Mohammad et al. (2023) reviewed the broader psychological and clinical implications of video game addiction, describing it as excessive and repetitive engagement in internet gaming that has become an increasingly important public health issue in the digital era. The review highlighted that widespread access to gaming platforms has coincided with neurological changes resembling those observed in substance-related addictions. The study further discussed the relationship between video game addiction and depression, alongside various psychological and social problems, while

explaining the mechanisms underlying addictive gaming behaviour, its clinical recognition, associated symptoms, and potential therapeutic interventions. The review concluded that greater awareness and evidence-based intervention strategies are essential for addressing the growing burden of video game addiction (Mohammad et al., 2023).

Collectively, these studies suggest that video game addiction is a multidimensional phenomenon influenced by interpersonal experiences, psychological vulnerabilities, developmental conditions, and broader social contexts. The literature consistently identifies factors such as victimisation, social anxiety, impulsivity, parasocial relationships, and depression as important correlates of problematic gaming while simultaneously emphasizing the need for more comprehensive and methodologically rigorous research to strengthen the evidence base.

Self-Esteem

Self-esteem has been widely recognised as an important psychological construct that influences individuals' emotional well-being, behavioural adjustment, academic functioning, and overall mental health. Recent research has examined its relationship with various health behaviours, psychological outcomes, and intervention strategies among adolescents and university students.

Arsandaux et al. (2020) conducted a comprehensive review examining the relationship between self-esteem and health-risk behaviours among college students. Synthesizing evidence from 115 studies covering behaviours such as substance use, sexual behaviour, dietary practices, and physical activity, the review found that higher levels of self-esteem were generally associated with healthier behavioural patterns. However, findings regarding alcohol consumption and sexual behaviour remained inconsistent across studies, with some evidence suggesting bidirectional relationships. The review highlighted the importance of establishing conceptual consistency in the measurement of self-esteem and health-risk behaviours and proposed self-esteem as an important target for interventions aimed at promoting healthier lifestyles among young adults (Arsandaux et al., 2020).

Similarly, Mohamed and Mostafa (2020) explored the influence of smartphone addiction on depression and self-esteem among nursing students using a cross-sectional research design. The study revealed that a considerable proportion of students experienced low self-esteem and symptoms of depression, while almost all participants reported some level of smartphone addiction. Statistical analyses demonstrated a significant negative relationship between self-esteem and depression, indicating that lower self-esteem was associated with higher depressive symptoms. Additionally, smartphone addiction showed a significant positive relationship with depression, suggesting that excessive digital engagement may adversely influence students' psychological well-being (Mohamed & Mostafa, 2020).

The psychological mechanisms underlying self-esteem have also been investigated within broader well-being frameworks. Tran et al. (2022) examined the mediating roles of psychological well-being and positive emotions in explaining the relationships among self-compassion, mindfulness, stress, and self-esteem among Vietnamese university students. Employing an explanatory sequential mixed-methods design involving surveys and in-depth interviews, the study demonstrated that psychological well-being and positive emotions significantly mediated these relationships. The findings indicate that improvements in self-compassion and mindfulness contribute to enhanced self-esteem largely through their positive influence on emotional well-being, thereby identifying potential targets for psychological interventions among university students (Tran et al., 2022).

Intervention-based evidence further supports the possibility of enhancing self-esteem through structured educational and counselling programmes. Ifeanyieze et al. (2023) investigated the effectiveness of a rational career intervention programme among agricultural education students in Southeast Nigeria. The study found that students who participated in structured counselling sessions demonstrated significant improvements in professional self-esteem compared to the control group. The findings also revealed that gender and duration of intervention significantly influenced professional self-esteem, leading the authors to recommend early counselling interventions for improving students' confidence and professional identity during their academic preparation (Ifeanyieze et al., 2023).

Overall, the reviewed studies consistently demonstrate that self-esteem is closely associated with psychological well-being, health-related behaviours, emotional functioning, and professional development. Higher self-esteem is generally linked with healthier behavioural outcomes and improved mental health, whereas lower self-esteem is associated with depression, problematic technology use, and other adverse psychological conditions. The literature also indicates that structured psychological and educational interventions can effectively strengthen self-esteem, underscoring its importance as a key determinant of positive developmental and educational outcomes.

OBJECTIVES OF THE STUDY

To examine the relationship between self-esteem and video game addiction and to compare the mean levels of video game addiction and self-esteem among elementary school students of Mizoram and Kerala.

HYPOTHESES OF THE STUDY

- There is a significant difference in self-esteem of elementary school students of Mizoram and Kerala based on video game addiction.
- There is a significant difference between elementary school students of Mizoram and Kerala in their self-esteem.

2. MATERIALS AND METHODS

The research design of the study is a comparative survey design. A normative survey method for data collection is followed. The normative survey method uses statistics and values considered normal for the group being surveyed to understand and collect data on a specific subject.

2.1 Study Material

- A Data bank: It is used to collect the data regarding the socio-demographic details of the participants.
- Video Game Addiction Checklist developed Shifna and Sameer Babu M(2019).
- Rosenberg Self-esteem Scale (1960)

2.2 Sample

The population of the present research includes students in upper primary education at various government and private schools in Kerala and Mizoram who fall within the age range of nine to fourteen. The participants consist of 400 secondary school students from Kerala and Mizoram, states of India. From each state, 200 students were selected following multi-stage cluster sampling technique. Schools and class-divisions were selected as clusters. The students were with an average age of 14.52 and standard deviation of 1.28.

2.3 Statistical Analysis

The collected data was coded and analysed using the IBM SPSS Software (25th Version). The data was subjected to descriptive statistics, mean, standard deviation, independent sample t-test, and one-way ANOVA, to find significant differences video game addiction and self-esteem.

3. RESULTS AND DISCUSSION

3.1 Results

Table 1 Descriptive statistical measures of the variables

	N	Mean	Std. Deviation	Variance	Skewness	Kurtosis
Video Game Addiction	400	20.09	4.05	16.38	.99	1.43
Self-Esteem	400	27.53	3.31	10.96	-.43	2.91

It is evident that the mean and standard deviation of students in their video game addiction scores are 20.09 and 4.05 respectively. Similarly, the mean and standard deviation on self-esteem are 27.53 and 3.31 respectively. The distribution is positively skewed for video game addiction whereas in the case of self-esteem, the distribution is negatively skewed (-0.43).

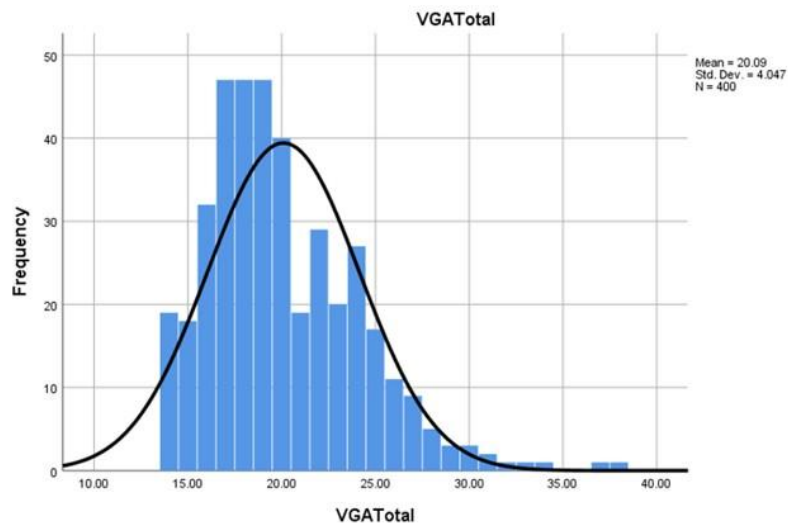


Figure: 1 *Video Game Addiction- Histogram of the Scores*

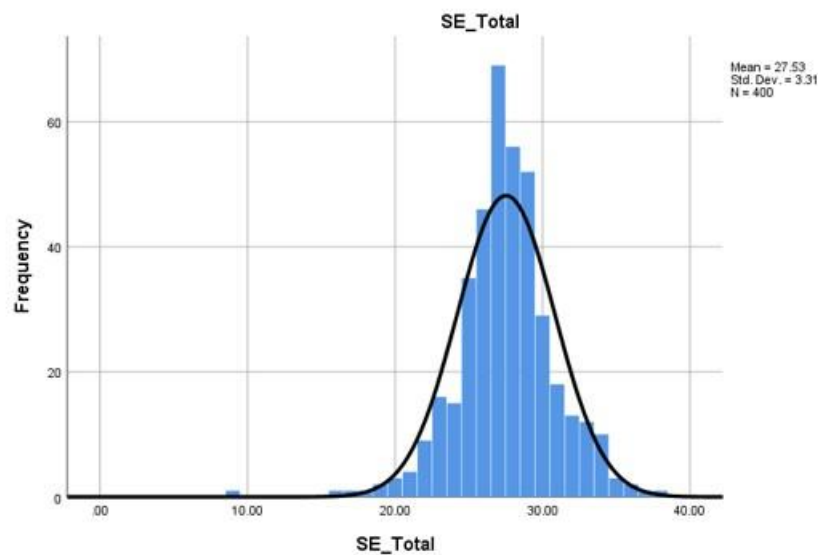


Figure 2: *Histogram- Self-Esteem*

Table 2

Table: 2 *Frequencies Based on Extent of Video Game Addiction*

	Frequency	Percent	Valid Percent	Cumulative Percent
Severely Addicted Group	190	47.5	47.5	47.5
Moderately Addicted Group	141	35.3	35.3	82.8
Not Addicted Group	69	17.3	17.3	100.0
Total	400	100.0	100.0	

The grouping of students based on the video game addiction is carried out by taking the mean and standard deviation of the whole group of respondents and thus, the categorization is done through SPSS using recode. 190 students are severely addicted to video game addiction, and 141 of them are moderately addicted. Only 17.3% (N=69) are reported not addicted.

Table 3 Result of Test of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
SE_Total	Between Groups	64.251	2	32.125	2.961	.053
	Within Groups	4307.499	397	10.850		
	Total	4371.750	399			

It is clear from Table 3 that the ANOVA results while comparing the scores of the video game-based three groups, is not significant for the variable self-esteem (2.691, $p>0.05$). It is interpreted that in the level of self-esteem, there is no significant difference among the video game addiction-based students' groups.

Table 4 Results of Comparison of Variables- State-wise

	State of Domicile	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
VGA Total	Mizoram	200	21.1750	3.66765	5.531	398	0.000
	Kerala	200	19.0150	4.12917			
SE_Total	Mizoram	200	26.8050	3.53830	-4.452	398	0.000
	Kerala	200	28.2450	2.89948			

The results of the independent sample t-test reported in Table 4 show that there is a significant difference between Mizoram and Kerala in terms of video game addiction ($t_{198}=5.531$, $p<0.01$) and self-esteem ($t_{198}=4.452$, $p<0.01$).

3.2 Major findings

- The mean and standard deviation of students in their video game addiction scores are 20.09 and 4.05 respectively.
- The mean and standard deviation in their self-esteem are 27.53 and 3.31 respectively.
- 190 students are severely addicted to video game addiction, and 141 of them are moderately addicted. Only 17.3% (N=69) are reported not addicted.
- The case of self-esteem while comparing among the video addiction-based groups is not significant (2.691, $p>0.05$).
- There is a significant difference between Mizoram and Kerala in terms of video game addiction ($t_{198}=5.531$, $p<0.01$) and self-esteem ($t_{198}=4.452$, $p<0.01$).

3.3 Discussion

The findings suggest two distinct patterns: video game addiction is unevenly distributed across severity levels, whereas self-esteem does not differ significantly across addiction-based groups in the present sample. Furthermore, significant differences were observed between students from Mizoram and Kerala in both video game addiction and self-esteem, indicating possible regional variations in digital behaviour and psychosocial characteristics (Anantha et al., 2024; Mathew & Krishnan, 2020; Singh et al., 2025; Thakur et al., 2023).

The large proportion of students classified under severe and moderate levels of video game addiction is consistent with the growing body of evidence from India indicating that gaming disorder has emerged as a significant public health concern among adolescents and young adults. Previous studies and recent evidence syntheses have reported considerable prevalence rates of problematic gaming across school and university populations, although the magnitude varies according to the characteristics of the sample and the assessment instruments employed (Amudhan et al., 2022; Satapathy et al., 2025; Shreenath & Varghese, 2026).

The absence of statistically significant differences in self-esteem across the various levels of video game addiction is also supported by earlier research. While some investigations have reported lower self-esteem among individuals with Internet Gaming Disorder (Singh et al., 2025; Thakur et al., 2023), other studies have demonstrated that psychological well-being and self-esteem do not necessarily differ substantially between gamers and non-gamers or across different gaming profiles (Ansari et al., 2022). These findings suggest that self-esteem may not function as a universal determinant of gaming addiction and that its association may depend on contextual, demographic, or psychosocial factors.

Evidence from Kerala further indicates that problematic internet use is negatively associated with adolescents' self-esteem (Mathew & Krishnan, 2020). Nevertheless, this relationship does not imply that self-esteem will significantly differ across all categories of gaming addiction. The non-significant findings in the present study may therefore be attributed to differences in sample characteristics, measurement approaches, or socio-cultural contexts (Mathew & Krishnan, 2020).

The broader Indian literature consistently demonstrates that problematic gaming behaviour is more strongly associated with psychological distress, including depression, anxiety, stress, emotional and behavioural problems, sleep disturbances, and impaired psychosocial functioning, rather than with self-esteem alone (Anantha et al., 2024; Arunima et al., 2023; Barot et al., 2025; Kakul & Javed, 2023; Mukherjee et al., 2021; Radhakrishnan et al., 2025; Singh et al., 2020). These findings reinforce the view that video game addiction is a multidimensional behavioural health concern influenced by a constellation of psychological and environmental factors.

The significant differences observed between students from Mizoram and Kerala in both video game addiction and self-esteem are broadly consistent with previous Indian studies reporting substantial regional variation in gaming behaviour and its psychosocial correlates across different states and educational settings (Anantha et al., 2024; Barot et al., 2025; Dhiman et al., 2025; Kumar et al., 2024; Mohamed Imran et al., 2024; Arthanari et al., 2025). However, it should be noted that the available literature does not provide a direct empirical comparison between Mizoram and Kerala with respect to video game addiction or self-esteem. Consequently, the present findings contribute new evidence regarding interstate variation in gaming behaviour within the Indian context (Mathew & Krishnan, 2020; Shreenath & Varghese, 2026).

4. CONCLUSION

Overall, the findings indicate that video game addiction varies significantly across levels of severity and between geographical regions, whereas self-esteem appears to be a comparatively weaker and context-dependent correlate of gaming addiction. These results are generally consistent with previous literature suggesting that the psychosocial consequences of gaming are complex and influenced by multiple interacting factors rather than self-esteem alone (Ansari et al., 2022; Mathew & Krishnan, 2020; Singh et al., 2025; Thakur et al., 2023).

The outcomes of this data analysis offer a comprehensive knowledge of the challenging issues that pupils are now encountering in the classroom. The prevalence of video game addiction and the significant proportion of students who fall into the severely and moderately addicted categories further emphasise the growing need for specialised treatments to address this issue. These findings are in line with recent research that highlights the link between stress and gaming addiction, especially among male students. It becomes evident that video game addiction is a crucial aspect of students' general wellbeing even if it does not seem to directly affect self-esteem. Nonetheless, it remains a crucial area of focus for methods due to its positive association with desired behaviours and outcomes.

The cultural and environmental impacts on these habits are demonstrated by the regional disparities between Mizoram and Kerala, suggesting that different approaches to addressing these issues may be needed in different places. These findings emphasise the necessity of all-encompassing strategies that include the interplay between video game addiction and self-esteem. Such approaches should promote students' mental and emotional health and take into account regional variances in the complex educational environment of today. Further research is necessary to have a deeper understanding of the underlying causes of these problems and to develop more effective solutions.

According to our research, a lot of children opt to play video games since they don't have access to any other entertaining activities. Violent video games are the most popular among children and teens due to their complex, high-quality graphics, more realistic imagery, use of artificial intelligence, complex game strategies, ingenious game inference engines, and human-machine interaction. It is imperative that parents watch over their children, and polite communication, digital citizenship, and moral conduct online are all very important. Schools may assist children develop appropriate internet behaviour by leading by example.

Educators should talk more about the advantages of educational or real-world games to assist young minds develop into more professional and realistic individuals, rather than promoting fantasy and false imaginations.

ACKNOWLEDGEMENTS

The authors acknowledge the Indian Council of Social Science Research (ICSSR), North Eastern Region for their support to complete this study.

AUTHOR CONTRIBUTIONS

Lalhriatpuui: Conceptualization, Investigation, Review, and Editing.

Sameer Babu M: Methodology, Laboratory Analysis, Data Curation, Formal Analysis, and Writing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICS STATEMENT

The authors followed all the ethical guidelines in the research. Formal permission was obtained from the school officials to collect the data. Informed consent was obtained individually from the parents of the students in writing after sharing the brief about the proposed research. No personal information is shared with anyone, and the data is kept highly confidential.

DATA AVAILABILITY STATEMENT

The data will be shared on request with the reviewers and editorial team on request, if needed.

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