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Short video addiction and risky decision-making behavior among university students

Mohamad Mehdi Hasanshahi

Department of Psychology, Arsanjan Branch, Islamic Azad University, Arsanjan, Iran.

Abstract

Introduction: This study aimed to investigate the impact of Short Video Addiction (SVA) on risky decision-making behavior among university students.

Materials and Methods: The statistical population of this cross-sectional study comprised undergraduate and graduate students at Islamic Azad University, Arsanjan-Iran in the academic year of 2024-2025. A sample of 128 participants was selected using multi-stage cluster sampling and divided into SVA and non-addicted groups. Data were collected using the Short Video Addiction Scale (SVAS) and the Balloon Analogue Risk Task (BART). We analyzed the data using multivariate analysis of covariance and univariate analysis of variance.

Results: The results indicated a significant overall difference in risky decision-making behavior between the SVA and non-addicted groups, after controlling for age and sex ($F(3,122)= 34759.322$, $P< 0.001$, Partial $\eta_P^2 = 0.999$). Follow-up univariate analyses confirmed that the addicted group demonstrated a significantly higher average pumps for unexploded balloons (risk-taking) ($F(1,124)= 893.17$, $P< 0.001$, Partial $\eta_P^2 = 0.878$) and a significantly lower number of balloons with collected earnings (risk management) ($F(1,124)= 606.73$, $P< 0.001$, Partial $\eta_P^2 = 0.830$). Furthermore, age had a significant effect on risky decision-making behavior, while sex did not show a significant impact.

Conclusion: Short video addiction is strongly associated with increased risky decision-making behavior and reduced risk management in university students. These findings underscore the critical need for developing prevention and intervention programs targeting this behavioral addiction and promoting safe decision-making skills within the young adult population.

Keywords: Behavioral addiction, Decision-making, Risk, Youth

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Introduction

In the current era, with the rapid advancements in information technology and the emergence of social media platforms, short video applications like TikTok or Instagram have become one of the most popular forms of digital content (1). These platforms have attracted millions of users worldwide with their personalized recommendation algorithms, engaging and diverse content, and potential for instant rewards (2,3). While short videos offer benefits such as entertainment, learning, and social interaction, and have even become an inseparable part of daily life, especially for adolescents and young adults, excessive and uncontrolled use of these applications has led to a phenomenon known as Short Video Addiction (SVA) (4). This is now recognized as an emerging behavioral disorder (2). This behavioral addiction is characterized by excessive preoccupation, loss of control over use, and the emergence of significant negative consequences on various aspects of an individual's life, including mental health and cognitive and behavioral function (5,6).

University students, as a group heavily exposed to digital technologies, are particularly vulnerable to short video addiction (7). This

period of life is accompanied by academic pressures, social adjustments, and identity formation, which can lead them to use short videos as a coping mechanism or a way to escape reality. However, the prevalence of short video addiction among university students has raised growing concerns about its effects on their academic performance and mental health (4). Previous studies have shown that this type of addiction can be correlated with mood disorders such as depression and anxiety, reduced academic performance, and problems in social relationships (8,9). Also, from a cognitive psychology perspective, there is growing concern that short video addiction may affect the brain's executive functions, particularly in areas related to decision-making and impulse control (10). Therefore, one of the critical areas of cognitive function that can be potentially affected by short video addiction is risky decision-making behavior. Risky decision-making behavior refers to the processes individuals engage in under conditions of uncertainty and risk; processes that play a central role in students' daily lives, from academic and career choices to financial and social decisions (10). Recent neuroimaging studies, using powerful tools that allow the examination of brain activity during cognitive tasks (11), have made it possible to study the activity of the prefrontal cortex in more realistic environments (12,13). These studies have identified functional deficits in brain regions associated with reward circuits and cognitive control in addicted individuals (14,15). In recent years, this type of research has received attention in the study of behavioral addictions (such as Internet addiction, video game addiction) and has made significant progress (16). These studies have helped identify structural anomalies and functional deficits in brain regions associated with reward circuits, cognitive control, and emotional processing in addicted individuals (17). Initial findings from these studies suggest impairment in the prefrontal cortex, a reduction in gray matter volume in specific regions, and changes in the functional connectivity of brain networks (18). Neuroscience research has shown that reward circuits and cognitive control regions in the prefrontal cortex, especially the ventral-medial prefrontal cortex and the orbitofrontal cortex, play an essential role in processing reward-punishment information and regulating behavior in risky situations (16,17).

From the perspective of addiction psychology, addictive disorders are often accompanied by impaired decision-making and increased impulsivity (18,19). Addicted individuals have a greater tendency to choose risky options with immediate rewards, even if these choices lead to negative long-term consequences (13). This decision-making bias may be due to impaired functional integration of neural circuits related to emotion regulation, impulse control, and value assessment (2). Given that short video addiction is linked to the activation of the brain's reward system and changes in attention (2,5), it is probable that short video addiction similarly affects risky decision-making processes.

Given the increasing prevalence of short video addiction among students and the critical importance of risky decision-making skills for their success in personal and professional life, it is essential to investigate how this addiction affects risky decision-making behavior. This research was conducted with the aim of examining the effect of short video addiction on risky decision-making behavior in university students, and it intends to compare behavioral patterns related to risky decision-making between students with and without short video addiction. The results of this research are expected to enhance our understanding of the pathology of short video addiction and contribute to the development of targeted interventions to improve cognitive function and mental health in the student population.

Materials and Methods

A comparative, ex post facto, between-group design was used in the present study. The statistical population for this study included undergraduate and graduate students enrolled at Islamic Azad University, Arsanjan, during the second semester of the 2024-2025 academic year. The sample consisted of 128 students selected using multi-stage cluster sampling from various faculties and departments. To determine the sample size, power analysis was used to determine the smallest required sample size. Based on similar studies conducted on media addiction and risky decision-making (e.g., Zhang and Li, 2025 (20); Gao et al., 2025 (2)), an expectation of a medium effect size (f= 0.25 or d= 0.5) was considered. Assuming a significance level of alpha= 0.05, a statistical power of 0.80, and a medium effect size (e.g., Cohen's d= 0.5 for comparing two groups),

according to G*Power software calculations, the minimum required sample size for each group was approximately 64 participants. Therefore, a total of at least 128 to 150 participants were needed for both the short video addicted and non-addicted groups to ensure sufficient power to detect significant effects. Considering a potential attrition rate or incomplete responses, data was collected from students until a sufficient number of participants were obtained in both groups after screening. Inclusion criteria included being an undergraduate or graduate student at Islamic Azad University, Arsanjan; being between 18 and 30 years old; providing written informed consent to participate in the research; and the ability to understand and complete the questionnaires and perform the task. Exclusion criteria included a self-reported or clinically interviewed history of a diagnosed psychiatric disorder (such as mood, anxiety, or psychotic disorders), a history of substance or alcohol abuse, any known brain injury or neurological diseases, and being under psychiatric or psychotherapeutic treatment at the time of the study.

Research instruments

A) Demographic Information Checklist: This included questions about gender, age, academic level, field of study, history of psychiatric illness or substance abuse, and history of neurological diseases.

B) Short Video Addiction Questionnaire (SVAS): This questionnaire was developed by Qin et al. (2019) (7) to measure the propensity for short video addiction in university students. It was initially developed with reference to Lian Yongjia's mobile addiction scale and then subjected to item analysis and exploration factor analysis using a pilot sample of 442 university students. The final, official version of the questionnaire consists of 14 items organized into four distinct dimensions: reduction (5 items), escape (3 items), loss of control (4 items), and inefficiency (2 items). In terms of psychometric properties, this questionnaire has good reliability and validity. In the original study by Qin et al. the scale demonstrated high internal consistency with a Cronbach's alpha coefficient of 0.89. The construct validity was confirmed through exploratory and confirmatory factor analysis (7). The Iranian version of the scale was validated by Zare et al. who reported a Cronbach's alpha of 0.86, indicating high reliability for the Iranian student population. The content validity was further confirmed by a panel of psychology experts (23).

C) Balloon Analogue Risk Task (BART): This test was first introduced in 2002 by Le juez (22) from the Department of Psychology at the University of Maryland, USA. This computerized test is a behavioral assessment tool that places the individual in a realistic risky decision-making situation, allows for the examination of the individual's level of risk-taking in real-world conditions, and measures the functioning or dysfunction of the individual's risky decision-making behavior. The test is designed such that the initial degrees of risk-taking by the subject are profitable and accompanied by a reward, while uncontrolled risk-taking leads to a loss (profit and loss in the form of a hypothetical monetary reward or penalty). In this test, participants have to inflate virtual balloons, earning money with each successful pump. However, each pump increases the risk of the balloon exploding, in which case all the money collected for that balloon is lost. At each stage, the participant must decide whether to continue pumping or to cash out the money.

In this test, the following values are considered as test scores: 1) The adjusted score is the average number of pumps for the balloons that did not explode. This variable is the main test score and the index of the subjects risk-taking. 2) The unadjusted score is the average number of pumps for all balloons. 3) The number of times the balloons burst. 4) The maximum and minimum number of times a balloon was pumped. In some studies, the main output variables of the BART include the mean number of pumps for unexploded balloons and the number of explosions. A higher number of pumps before bursting or cashing out indicates a greater tendency for risk-taking. In this research, risky decision-making was assessed using the computerized Persian Balloon Analogue Risk Task (BART) (24).

Lejuez et al. demonstrated that the BART has high test-retest reliability (r= 0.77) and strong predictive validity, correlating significantly with real-world risky behaviors such as substance use and gambling (22). The computerized version of the BART was standardized in Iran by Khodadadi et al. (25). Their study reported a reliability coefficient of 0.81 using the split-half method and confirmed

its validity by comparing results with the Iowa Gambling Task (IGT).

D) Clinical Interview: Final SVA group assignment was confirmed via a semi-structured clinical interview conducted by an experienced psychologist.

This interview confirmed compulsive SVA use utilizing adapted criteria from the Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5) Internet Gaming Disorder and established social media addiction scales (26-32).

Procedure

Data collection involved three concise steps:

1. Participants completed the SVAS and were sorted into the SVA group or the non-addicted group.
2. Risky decision-making was compared between groups using the BART.
3. MANCOVA was the primary analysis, comparing BART scores between the two groups while statistically controlling for sex and age.

Results

This study was conducted with the aim of comparing the behavioral patterns of risky decision-making (measured by BART) between students with short video addiction and students without it, using a comparative, ex post facto, between-group design. The final sample consisted of 128 students (64 in the addicted group, 64 in the non-addicted group). Participants' mean age was M= 22.5 years (SD= 2.1), and the sample included 55% female and 45% male students, representing various academic levels. Descriptive results showed that the addicted group exhibited a significantly higher tendency for risky decision-making across all three BART indices compared to the non-addicted group. Table 1 presents the descriptive results of the variables.

Table 1. Descriptive statistics for risky decision-making behavior by short video addiction group

Balloon Risk Task Index	Group	Mean	Standard Deviation
Average pumps for unexploded balloons	Addicted	76.88	6.99
	Non-Addicted	38.75	7.14
Mean total pumps	Addicted	47.36	5.21
	Non-Addicted	35.44	2.72
Number of balloons with collected earnings	Addicted	16.05	3.27
	Non-Addicted	23.67	2.42

Interpretation: The addicted group averaged substantially more pumps on unexploded balloons (indicating higher risk-taking) and successfully cashed out fewer balloons (indicating poorer risk management).

MANCOVA was used to examine the overall effect of the group, controlling for sex and age, on the BART indices. Assumptions (normality, homogeneity of covariance) were confirmed (Table 2).

Table 2. Results of MANCOVA on subscales of the balloon risk task

Source	Index	Value	F	df	Error df	P	Partial Eta Squared
Group	Pillai's Trace	0.999	34759.322	3	122	< 0.001	0.999
Age	Pillai's Trace	0.766	133.18	3	122	< 0.001	0.766
Sex	Pillai's Trace	0.013	0.55	3	122	0.647	0.01

The results of the multivariate MANCOVA tests to examine the effect of independent variables (group, sex, age) on the set of dependent variables (BART indices) showed that, after controlling for the effects of sex and age, there was a significant difference in the set of dependent variables between the two groups of "addicted" and "non-addicted" to short videos. This finding indicates that short video addiction has a significant impact on students' risky decision-making behavior ($F(3,122)= 34759.322$, $P< 0.001$, Partial $\eta_P^2 = 0.999$). The results also showed that age has a significant multivariate effect on the set of dependent variables, indicating that age also plays an important role in the differences in risky decision-making behavior. However, there was no significant difference in risky decision-

making behavior between male and female students in the total sample. It should be noted that the results for the other statistics (Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root) were also similar for MANCOVA (Table 3).

Table 3. Results of between-subjects effects tests on subscales of the balloon risk task

Source of variation	Dependent variable	Sum of Squares	df	Mean Square	F	P	Partial Eta Squared
Group	Average pumps for unexploded balloons	24565.84	1	24565.84	893.17	< 0.001	0.878
	Mean total pumps	1362.38	1	1362.38	301.42	< 0.001	0.709
	Number of balloons with collected earnings	2332.80	1	2332.80	606.73	< 0.001	0.830
Age	Average pumps for unexploded balloons	2791.86	1	2791.86	101.50	< 0.001	0.450
	Mean total pumps	1606.80	1	1606.80	355.50	< 0.001	0.740
	Number of balloons with collected earnings	555.08	1	555.08	144.37	< 0.001	0.530

The univariate results confirmed a significant difference between the addicted and non-addicted groups on: Average pumps for unexploded balloons (F= 893.17, *P*< 0.001): The addicted group showed significantly higher risk-taking. Mean total pumps (F= 301.42, *P*< 0.001): The addicted group performed more pumps overall. Number of balloons with collected earnings (F= 606.73, *P*< 0.001): The addicted group successfully cashed out fewer balloons, indicating greater failure in risk management. Students with short video addiction exhibit significantly and strongly higher risky decision-making behavior across all BART indices compared to non-addicted students.

Discussion

The primary aim of this research was to investigate the effect of Short Video Addiction (SVA) on the risky decision-making behavior of students at Islamic Azad University, Arsanjan. The findings, after controlling for age and sex, clearly demonstrate that students with SVA exhibit significantly higher risky decision-making behavior compared to students without this addiction. Specifically, the addicted group performed a higher number of pumps on unexploded balloons, recorded higher mean total pumps, and successfully collected earnings from a lower number of balloons. These results confirm that individuals with SVA adopt riskier behavioral patterns and exhibit lower risk management in ambiguous situations. The results of the current study are highly consistent with recent empirical findings in the field. For instance, Zhang and Li observed that college students with SVA demonstrated a significantly higher tendency for risk-taking and higher rates of balloon explosions in the BART paradigm, which aligns with our findings of increased "over-pumping" and lower final earnings. This behavioral shift suggests a diminished sensitivity to potential losses and a failure in value-based assessment (20). Similarly, Ye et al. found that excessive short-form video use is positively associated with increased risk-taking, noting that these patterns parallel those seen in other behavioral addictions like Internet Gaming Disorder (IGD) (33). In terms of methodological comparison, while our study focused on university students, Gong and Tao (3) investigated a younger population of 1,052 elementary school students. Despite the difference in the statistical population, their finding that short video usage negatively impacts cognitive outcomes (like attention) through the mediating role of attentional control supports the cognitive impairment mechanism identified in our research. By using an objective behavioral task (BART) rather than purely self-report measures, our study provides more robust evidence of these cognitive deficits in early adulthood. From a neurocognitive perspective, the observed deficits can be linked to changes in the brain's executive functions. Yan et al. (34) utilized EEG technology to show that excessive short-video use impairs inhibitory control and attentional functions. This impairment likely explains why SVA students in our study were unable to effectively inhibit the impulse to pump the balloon even as the risk grew. Furthermore, Zhang and Li (20) linked this behavior to heightened activation in the orbitofrontal cortex

(OFC), a region critical for reward anticipation. Theoretical models such as reward sensitivity theory and self-control deficit theory further clarify these findings. Short videos are designed to provide rapid, intermittent rewards that stimulate the reward system. This creates a "positive reinforcement cycle" that increases impulsivity and weakens the ability to plan for long-term consequences. Consequently, addicted individuals prioritize immediate gratification—pumping the balloon for more reward—over the logical assessment of risk. The current study found that age is a significant predictor of risky decision-making behavior, whereas sex did not have a significant impact. This lack of sex-based differences contrasts with some earlier studies, such as Ju and Wallraven (35), which reported higher sensation-seeking in males during the BART task. This discrepancy may be due to our specific sample (university students) or the strict control of the age variable, highlighting the need for further research into how demographic factors moderate addiction effects. This study ex post facto design prohibits definitive causal inference; the relationship between SVA and risky decision-making may be bidirectional or attributable to underlying factors. Additionally, the convenience sampling used in the final stage may limit the generalizability of results beyond the current university setting. Future research should employ longitudinal designs to clarify causality.

We suggest using neuroscience techniques (e.g., fNIRS or fMRI) alongside behavioral tasks to identify the specific neurobiological mechanisms, as well as investigating mediating variables such as impulsivity, self-control, and specific personality traits.

Conclusion

This research provides strong evidence that short video addiction is associated with increased risky decision-making behavior in university students, underscoring the need for targeted prevention and intervention programs.

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Conflict of Interest

The authors declare no conflict of interest.

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Ethical Considerations

The study protocol was reviewed and approved by the Ethics Committee of Islamic Azad University, Arsanjan. All participants provided written informed consent prior to data collection, and anonymity and confidentiality were maintained throughout the study.

Code of Ethics

IR.IAU.A.REC.1404.032.

Authors' Contributions

The author involved in all stages of study and preparation of the manuscript.

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