

Social Exclusion and Short Video Addiction: The Mediating Role of Boredom and Self-Control

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Background: Short video apps are very popular among Chinese college students, and some students even rely on them. Most of the current research has focused only on Internet addiction and has seldom focused on the phenomenon of short video addiction. Its influencing factors and formation mechanism are worth exploring.

Objective: This study aimed to explore the relationship between social exclusion and short video addiction among college students and the mediating roles of boredom and self-control.

Methods: This study adopted a multistage investigation and investigated 532 college students (39% male; mean age 19.32 ± 1.23 years) with a social exclusion scale, boredom proneness scale, self-control scale, and short video addiction scale. The mediating effect was tested with Process 3.1.

Results: The results showed that social exclusion has a positive predictive effect on college student's short video addiction. The impact of social exclusion on college student's short video addiction was mediated by boredom and self-control, and the chained mediation of boredom and self-control.

Conclusion: Theoretically, this study modified the I-PACE model, indicating that personal and distant social factors should be considered in individuals with behavioral addictions, such as short video addiction. Practically, the results suggested that schools should reduce peer rejection and improve students' mental health literacy to reduce boredom and enhance self-control, thus effectively preventing short video addiction.

Keywords: social exclusion, boredom, self-control, short video addiction

Introduction

With the rapid development of mobile internet technology, short video applications, such as Tik Tok and Kwai, which are widely accepted and used by people, especially college students, have gained the attention of the Chinese public. According to an authoritative survey, the number of short video users in China has reached 1026 million, accounting for 95.2% of the total number of Internet users.¹ While short video applications make life more colorful, they have become "sweet poisons". Once used, it is difficult for some users to stop and even develop symptoms of addiction. Therefore, following internet gaming disorder, short video addiction has become a new phenomenon of concern for researchers. Short video addiction is an obsessive state in which individuals repeatedly, frequently, and uncontrollably use short videos. Once users become addicted, it will have adverse effects on their physical and mental health, such as anxiety, depression, stress, self-harm, and anorexia.²⁻⁴ For this reason, short video addiction has attracted the attention of parents, schools, and society and has become an important topic in many disciplines, including psychology, pedagogy, and sociology. Therefore, exploring the risk factors for short video addiction to prevent it scientifically and protect users' physical and mental health is necessary.

Social Exclusion and Short Video Addiction

Although some influencing factors of short video addiction have been discussed, social exclusion is rarely considered. Social exclusion refers to the interactive phenomenon of being rejected and ignored by individuals or groups in social

communication, which is a stressful event in interpersonal communication.⁵ According to the general strain model, problem behaviors such as short video addiction are closely related to external stress or stressors.⁶ There are three kinds of external pressure: frustration of individual psychological needs, a reduction in positive experiences, and exposure to negative experiences. Social exclusion is a harmful experience, so it may lead to short video addiction. Individuals who are rejected by others can experience psychological pain, which prompts them to develop an escape motivation. Short videos become good placebos, and individuals can choose content that makes them feel happy according to their preferences to fight the pain caused by social exclusion.⁷ More importantly, the application platform can automatically and continuously push the content individuals are interested in according to their preferences to obtain positive rewards continually.⁸ This sense of psychological compensation and pleasure makes it easy for individuals to become addicted. As a new phenomenon and problem, few studies have directly discussed the relationship between social exclusion and short video addiction. Nevertheless, similar studies have shown that social exclusion is significantly related to other forms of technical addiction, such as mobile phone dependence and Internet addiction.⁹ In summary, this study proposes H1: social exclusion can significantly predict short video addiction.

Boredom as a Mediator

According to the general strain model, the influence of external stressors on short video addiction is often mediated by negative emotions.⁶ Previous studies have focused on anxiety and depression, but little attention has been given to the impact of boredom on individual psychological and behavioral problems. Therefore, this study attempted to examine the mediating role of boredom in the relationship between social exclusion and short video addiction.

Boredom is “a negative experience of desiring but being unable to engage with the environment or in satisfying activities”.⁹ On the one hand, social exclusion is related to boredom. In other words, social exclusion may be one of the causes of boredom. According to psychological needs theory, establishing social relationships is essential to meeting psychological needs.^{10,11} Social exclusion can lead to a lack of basic psychological needs such as individual belonging and esteem needs. This unsatisfactory state of psychological needs causes individuals to feel dissatisfied with life and to lack a sense of meaning in life, thus arousing boredom.¹²

However, boredom is related to short video addiction. According to the sensation-seeking theory, it is difficult for individuals to survive in a “vacuum” of sensation, and certain stimuli are needed to maintain the sensory balance of the body.¹³ Boredom is a state of low arousal that drives individuals to actively seek meaningful or extreme stimulation. Short videos can automatically screen and push content according to personal preferences, which can fit an individual’s personalized needs and bring individuals a sense of pleasure and excitement, so it is easy for them to become addicted. In addition, similar studies have found a significant relationship between boredom and Facebook addiction.¹¹ Therefore, this study proposes H2: Boredom mediates the relationship between social exclusion and short video addiction.

Self-Control as a Mediator

Self-control refers to the ability to consciously control the direction of one’s behavior by overcoming impulses and habitual or automatic responses.¹⁴ Based on the literature review, self-control may mediate the relationship between social exclusion and short video addiction. First, social exclusion is related to self-control. According to the temporal need-threat model, social exclusion threatens various psychological needs of individuals, including their sense of control.^{15,16} In addition, social exclusion consumes individuals’ cognitive resources, reduces their sense of self-efficacy, and leads to impaired self-control ability.¹⁷ Empirical research has also revealed a significant negative correlation between social exclusion and self-control.^{15,18}

Second, self-control is related to short video addiction. According to the I-PACE model of addictive behavior, weak self-control ability is a risk factor for addictive behavior.¹⁹ Faced with short videos with beautiful content and functions, individuals with better self-control can rationally control and adjust their internal needs. This makes their user behavior more aligned with social expectations and norms, and they are not addicted to short videos.²⁰ In contrast, individuals with poor self-control can hardly resist the great content presented in short videos. They will lose the sense of time in the process of use, which makes them more prone to short video addiction. Previous studies have found a significant negative

correlation between self-control and mobile phone or social media addiction. Therefore, this study proposes H3: self-control mediates the relationship between social exclusion and short video addiction.

A Sequential Mediation Model

Boredom may be an essential factor affecting self-control. According to the I-PACE model of addictive behavior, both negative emotions and psychological stress consume self-regulation resources and impact individual self-regulation systems.¹⁹ As a negative emotional experience, boredom may lead to greater levels of ego depletion, reducing self-control over future behavior.²¹ In addition, boredom can also aggravate an individual's sensation seeking, which leads to impaired self-control.²² An empirical study revealed that individuals with higher levels of boredom have poorer self-control and become more impulsive.²³ A longitudinal study also revealed that depressive symptoms predict deficits in executive functioning rather than vice versa.²⁴ In summary, social exclusion may increase boredom, reduce self-control, and eventually lead to short video addiction. Therefore, this study proposes H4: boredom and self-control sequentially mediate the relationship between social exclusion and short video addiction.

The Present Study

In summary, short video addiction has become a common problem faced by college students in China, which seriously threatens their physical and mental health. Therefore, it is necessary to explore its influencing factors in order to better prevent it. However, at present, there are few studies focusing on the causes of short video addiction from the perspective of I-PACE model and the interaction between individuals and the environment. Therefore, this study selects three important influencing factors: social exclusion, boredom and self-control to analyze its important role in college students' short video addiction, and tests whether social exclusion can further aggravate short video addiction through boredom and self-control. Our proposed serial mediation model of the link between social exclusion and short video addiction is shown in Figure 1.

Methods

Participants and Procedures

This study adopted convenient sampling to select two universities in Shandong Province and conducted online tests between public classes after obtaining the consent of the schools and teachers. Monte Carlo power analysis for indirect effects was conducted through a modern online application (https://schoemanna.shinyapps.io/mc_power_med/). We set the statistical power at 0.9, and after calculation, the required sample size is at least 388. This study adopted a multistage survey technique to reduce the pressure on the participants to answer the questions. Only the social exclusion and boredom scales were distributed at T1, and the self-control and short video addiction scales were distributed one month later (T2). Finally, a total of 609 questionnaires were collected, and 523 valid questionnaires remained after excluding invalid questionnaires such as those with short completion times and uniform answer options for the same scale (317 females and 206 males; 161 freshmen, 173 sophomores, 126 juniors, and 63 seniors; $M_{age} = 19.32$, $SD_{age} = 1.23$). This study was approved by Ethical Committee of Hebei Normal University. All participants signed an informed consent form before starting the questionnaire and could withdraw from the study at any time.

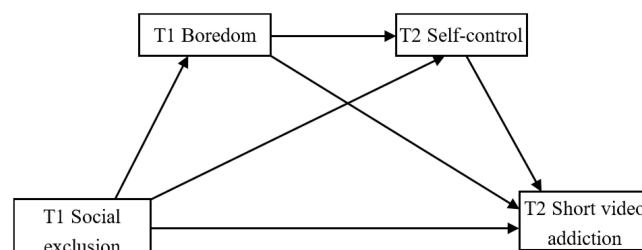


Figure 1 The proposed serial mediation model.

Measures

Social Exclusion

The Social Exclusion Scale was used to measure social exclusion.²⁵ It has 11 items, including two dimensions of rejection and neglect. Items were rated on a 5-point Likert scale from “strongly disagree” to “strongly agree”. Previous studies have shown that it can be applied to Chinese college students.²⁶ The Cronbach’s α coefficient in this study was 0.83.

Boredom

The Short Boredom Proneness Scale was used to measure boredom.²⁷ The scale is single-dimensional and includes eight items, which are scored on a 5-point Likert scale from “totally disagree” to “totally agree”. Previous studies have shown that it can be applied to Chinese college students.²⁸ The Cronbach’s α coefficient in this study was 0.88.

Self-Control

The Chinese version of the Brief Self-Control Scale was used to measure self-control.²⁹ It has seven items, including two dimensions of self-discipline and impulse control. Items were rated on a 5-point Likert scale from “strongly disagree” to “strongly agree”. The Cronbach’s α coefficient in this study was 0.78.

Short Video Addiction

To better suit the specific context of our study, the Chinese version of the Bergen Social Media Addiction Scale was adapted, and the description of “social media” in each item was changed to “short videos”.³⁰ The single-dimensional scale includes six items scored on a 5-point Likert scale from “totally disagree” to “totally agree”. The Cronbach’s α coefficient in this study was 0.91.

Data Analysis

SPSS 22.0 and Process 3.2, developed by Hayes, were used for the data analysis. A bootstrapping technique was used to examine the significance of the direct and indirect effects by generating 1000 bootstrap samples.³¹ Monte Carlo power analysis for indirect effects was conducted through a modern online application.³² We set the statistical power at 0.9, and after calculation, the required sample size is at least 388. Additionally, Before data processing, single-factor confirmatory factor analysis was used to test for common method bias. The results showed poor model fit ($\chi^2/df=9.87$, RMSEA = 0.11, CFI = 0.56, NFI = 0.43, TLI = 0.42), indicating that there was no apparent common method bias in this study.

Results

Preliminary Analyses

The means, standard deviations, and correlations are shown in Table 1. Social exclusion was significantly positively correlated with boredom, short video addiction, as well as negatively correlated with self-control. Boredom was significantly negatively associated with self-control and positively correlated with short video addiction. Self-control was significantly negatively correlated with short video addiction.

Table 1 Descriptive Statistics and Correlations for the Observed Variables (N = 523)

Variables	M	SD	1	2	3
1.T1 social exclusion	2.32	0.81			
2.T1 boredom	2.38	0.67	0.25**		
3.T2 self-control	2.86	0.82	-0.16**	-0.23**	
4.T2 short video addiction	2.47	0.87	0.26**	0.27**	-0.37**

Note: **p < 0.01.

Abbreviations: M, mean; SD, standard deviation.

Testing for the Mediation Model

The results of the mediating effect analysis showed that the mediation effect value was 0.10, accounting for 34.48%. Specifically, boredom played a significant mediating role between social exclusion and short video addiction. The mediation effect value was 0.04, the percentage of total effect relative to 13.79%. In addition, self-control played a significant mediating role between social exclusion and short video addiction. The mediation effect value was 0.04, the percentage of total effect relative to 13.79%. The chain mediating effect of boredom and self-control between social exclusion and short video addiction was also significant (Figure 2 and Table 2). The chain mediating effect value was 0.02, the percentage of total effect relative to 6.90%. This study examines the differences in mediating effects. The results indicated that, compared with ind2 and ind3, ind1 has an enormous mediating impact, and there was no significant difference in the effect values between ind2 and ind3.

Discussion

Unlike previous studies on mobile phone addiction and internet addiction, this study focused on short video applications. This study is the first to address the common problem of short video addiction in China. For the first time, this study analyzed the effect of social exclusion on short video addiction and the mediating effect of boredom and self-control on the relationship between them. This study not only enriches the relevant research on short video addiction in China but also helps to compare similar studies in other countries to obtain a more comprehensive understanding of the formation mechanism and cross-cultural differences of short video addiction.

The Association Between Social Exclusion and Short Video Addiction

The results show a significant correlation between social exclusion and short video addiction, and the former can significantly predict the latter. This result verifies Hypothesis 1, which is consistent with compensatory Internet use theory and the general stress model.^{6,7} At the same time, this study is also a supplement and modification to the recently popular I-PACE model, which only pays attention to the individual factors and interaction of short video addiction and other unique forms of technology addiction without considering environmental factors.¹⁹

Social exclusion can induce short video addiction because short videos may compensate for psychological needs. Social exclusion is a kind of social trauma, and excluded individuals experience psychological pain and burnout due to belonging frustration. Such real-life stressful events encourage individuals to seek good channels for venting and soothing.²⁶ Short video applications have precise content push algorithms and functions, which can well meet the psychological needs of individuals and improve their psychological pleasure.³³ Most importantly, the content in short videos is often ostentatious, exaggerated, or decorated and powerfully uses stickiness when individual psychological pain is soothing. Once you are interested, you can continue to follow the dynamic content the uploader updates. Eventually, it becomes increasingly challenging to jump out of the virtual world, leading to short video addiction.^{2,22} This result goes further than those of previous studies on mobile phone dependence, indicating that social exclusion does not necessarily lead to addiction to the mobile phone itself but rather to some functions. Short videos are essential.

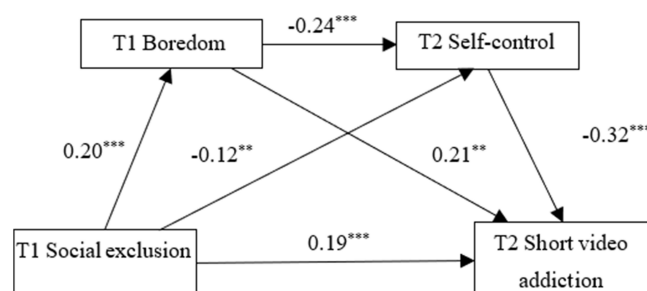


Figure 2 The mediation model (unstandardized estimated).

Note: ** $p < 0.01$, *** $p < 0.001$.

Table 2 The Direct and Indirect Effects of the Mediation Model (Unstandardized Estimated)

Model Pathways	Effect	95% CI	
		Lower	Upper
Direct effect			
Social exclusion → short video addiction	0.19	0.10	0.28
Indirect effects			
Social exclusion → boredom → short video addiction (ind1)	0.04	0.02	0.07
Social exclusion → self-control → short video addiction (ind2)	0.04	0.01	0.07
Social exclusion → boredom → self-control → short video addiction (ind3)	0.02	0.01	0.03
Mediating effect difference test			
Test 1 (ind1-ind2)		-0.04	0.05
Test 2 (ind1-ind3)		0.00	0.53
Test 3 (ind2-ind3)		-0.02	0.06

The Mediating Role of Boredom

The results also show that social exclusion has a direct effect on short video addiction and indirectly leads to the emergence of short video addiction by inducing boredom. This result verifies hypothesis 2, which is also in line with the general stress model, and shows that stressful events can lead to the emergence of problem behaviors such as short video addiction through the radiation of negative emotions.⁶ When discussing negative emotions, previous studies often pay more attention to anxiety and depression and seldom pay attention to boredom. Boredom is even more common among college students and even working people than are the above two kinds of negative emotions, and sometimes it is even called a “hollow disease”.⁹ This study validates its crucial role in social exclusion and short video addiction.

First, social exclusion is an essential factor in promoting boredom. It is difficult for ostracized individuals to integrate into the group, which leads to a lack of satisfaction of their basic psychological needs and low core self-evaluations, thus resulting in a lack of meaning in life and increased boredom.³³ In addition, reducing social opportunities and social activities caused by social exclusion also reduces individuals’ meaningful experience. This makes the individual’s life more monotonous and boring, thus leading to more feelings of boredom.²⁸ Second, accumulating dull feelings can easily lead to overuse or even addiction to short videos. Individuals under the control of boredom are often in a state of low arousal, so individuals tend to look for stimuli to restore the sensory balance of the body.²⁸ The short video is a typical mobile phone application and is updated quickly. The most important thing is that its content has both words, audio, and images, which can stimulate users’ multiple senses in an all-around way. It is easy for users to love and increase stickiness. In addition, many application platforms encourage users to consume content while producing content to earn income. It is equivalent to a kind of reinforcement so that individuals can reduce their boredom and increase their dependence, eventually leading to short video addiction.

The Mediating Role of Self-Control

This study also revealed that self-control can significantly mediate the relationship between social exclusion and short video addiction, which verified hypothesis 3. For the first path of this indirect effect, social exclusion can substantially weaken self-control ability, consistent with previous research results and in line with the view of the temporal need-threat model.^{16,34}

Social exclusion makes it difficult for individuals to satisfy their needs for belonging and love and damages their feelings of self-worth.¹⁵ When individuals have poor self-evaluations, they will reduce their self-constraints and requirements. In addition, such people will also experience a sense of powerlessness and helplessness in coping with the event, resulting in a decline in their level of self-control.¹⁷ Moreover, social exclusion can also lead to rumination,

thus occupying cognitive resources and reducing the ability for individual self-control.³⁴ For the second path of this indirect effect, self-control can significantly negatively predict short video addiction, which is consistent with the results of previous similar studies.^{23,35} The reason is that individuals with poor self-control are less resistant to new things. Under the temptation of fashionable and diverse short video content, individuals will find it hard to resist and become addicted to it.³⁵ In addition, it is difficult for this kind of person to perceive and manage time, so there will be time perception deviation in the process of using short videos, and it is difficult to quit and withdraw.²³ In other words, social rejection can cause individuals to become addicted to short videos by impairing their self-control.

Sequential Mediation

This study also revealed that boredom and self-control mediated the association between social exclusion and short video addiction, which supported hypothesis 4 and was consistent with the viewpoint of the I-PACE model.¹⁹ The I-PACE model emphasized the interaction between affect and execution, and this study also revealed that the boredom induced by social exclusion can indeed affect the strength of self-control. One explanation could be that negative emotions may deplete individuals' cognitive resources, leading to executive control dysfunction and thus weakening their level of self-control.²¹ Boredom may lead to more negative self-evaluation, thus undermining self-control efforts and the acquisition of target behavior.¹³ Finally, a higher level of boredom will lead to more sensory seeking, making it difficult for individuals to resist temptation and reduce their self-control level.²³ Overall, this study is a modification of the I-PACE model. In addition to individual factors and their interactions that can lead to addictive behaviors, there are also distant environmental factors that may affect individual factors. In summary, this study showed that ostracized individuals were more likely to experience boredom, which weakened their self-control and ultimately led to short video addiction.

Limitations and Implications

There are several limitations of the current research. First, although this study adopted a multistage method to collect data, it failed to control for the autoregressive effect of the variables themselves. In the future, a longitudinal design should be used to reveal the causal relationships between these variables. Second, this study considered only the mediating mechanism through which social exclusion affects short video addiction and did not consider this moderating mechanism, which can be considered in the future. Finally, this study tested only the hypothetical model in Chinese participants, and cross-cultural research can be carried out based on the popularity of short videos in the future.

Despite these limitations, this study also has important implications. Theoretically, few studies have explored the formation mechanism of short video addiction by combining social and individual factors. This study modified the I-PACE model to a certain extent, indicating that behavioral addictions, such as short video addiction, should consider personal and distant social factors. Practically, it is difficult to eliminate the use of mobile phones, and university administrators should consider preventing addiction to the specific application of mobile phones. For example, to avoid short video addiction, schools should create a campus atmosphere of mutual help and reduce peer exclusion and rejection. Schools should strive to minimize peer exclusion and rejection and create a campus atmosphere where students help each other. Schools can also carry out positive mental health education, improve students' mental health literacy, reduce boredom, and enhance self-control to effectively prevent short video addiction.

Conclusion

The results showed that social exclusion has a positive predictive effect on college student's short video addiction. The impact of social exclusion on college student's short video addiction was mediated by boredom and self-control, and the chained mediation of boredom and self-control. Schools should reduce peer rejection and improve students' mental health literacy to reduce boredom and enhance self-control, thus effectively preventing short video addiction.

Data Sharing Statement

The datasets used during the current study are available from the corresponding author on reasonable request.

Ethics Statement

All participants in the study provided informed consent, and all the methods and research procedures were conducted in accordance with the Declaration of Helsinki. The study was approved by the Ethical Committee of Hebei Normal University.

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Disclosure

The authors report no conflicts of interest in this work.

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