The Role of Loneliness, Boredom, and Emotion Regulation in Short Video Addiction Among Chinese University Students

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Abstract

Purpose: Previous research shows the widespread and excessive use of short video apps among Chinese university students, which impairs their academic performance, relationship quality, and physical and mental health. However, the contributing factors behind short video addiction remain underexplored. Therefore, this study aims to theoretically examine the role of loneliness, boredom, and emotion regulation in short video addiction among Chinese university students and to establish a conceptual framework for understanding this addiction. **Methodology:** A narrative review of related literature sources was conducted to explain the concepts and interplay of loneliness, boredom, emotion regulation, and short video addiction among Chinese university students. **Results:** The theoretical framework suggested that loneliness positively predicts short video addiction among Chinese university students. Boredom can play a mediator in this dynamic in which users with greater loneliness experience increased boredom, which in turn results in short video addiction. Furthermore, emotion regulation can moderate the relationship between loneliness and boredom among Chinese university students. **Conclusion:** The findings contributed to the literature on the effect factors of short video addiction, paving the way for further research in this critical area and providing a theoretical foundation for future empirical research.

Keywords: Loneliness, Boredom, Emotion Regulation, Short Video Addiction, University Students

JEL Classification Code:

1. Introduction

China's short video platforms have become the most attractive Internet application to new netizens. These applications, such as Douyin, Kwai, WeChat, TikTok, and Reels, both in China and abroad, are a new type of Internet media that distribute a large number of videos, typically shorter than 1 minute (Kaye et al., 2022). Short video platforms provide tools for users and encourage them to film various aspects of their lives, which makes the video content rich and colorful (Kaye et al., 2021). 1.053 billion people, making up 96.4% of all Chinese Internet users, watch short videos in China until December 2023, a rise of 41.45 million from 2022 (China Internet Network Information Center, 2024). Relevant platforms reached 1.55 billion short video accounts at the end of 2023. The average daily usage time per user for short video applications was 151 minutes, exceeding 2 hours (China Netcasting Services Association, 2024). Short videos are extremely popular and widely used among university students, occupying a significant amount of users' time based on the report. Short video applications make individual life beautiful and colorful, but overuse of these short videos can result in addiction (Zhang et al., 2019). The research has shown university students' widespread and excessive use of short video apps (Cheng & Liu, 2024; Li et al., 2021c). Meanwhile, short video application users are more easily addicted due to the algorithm-driven, colorful content, customized recommendations, short duration, and flowing experience in short videos (Anderson, 2020; Meng & Leung, 2021; Huang et al., 2021). However, short video addiction, as a type of internet application addiction, is a compulsive behavior with repeated, continuous, uncontrollable, and intense use of short video applications (Zhang et al., 2024a). It has an adverse influence on university students. Short video addiction impairs students' academic performance, relationship quality, and physical and mental health (Chen et al., 2023; Li et al., 2021c; Qu et al., 2024; Xie et al., 2023; Ye et al., 2022; Ye et al., 2023, March; Zhang et al., 2024a).

Many factors contribute to short video addition, including mental health issues, social needs, social influences, coping strategies, and personality traits (Huang & Ch'ng, 2024; Jianfeng et al., 2024; Mu et al., 2024; Yue et al., 2024). However, compared with other forms of internet use addiction, the impact of loneliness on short video addiction among Chinese university students remains underexplored. Besides, no research examines the mediating role of boredom and the moderating role of emotion regulation in this effect pattern. Therefore, it is vital to clarify the effect of boredom, loneliness, and emotional regulation on short video addiction among Chinese university students.

The present research aims to establish a conceptual framework for the development of short video addiction among Chinese university students, including:

- 1. Theoretically examining the effect of loneliness on short video addiction among Chinese university students.
- 2. Theoretically evaluating the mediating role of boredom in the relationship between loneliness and short video addiction.
- 3. Theoretically assessing how emotion regulation moderates the relationship between loneliness and boredom.

2. Literature Review

2.1. Short Video Addiction

In this study, short video addiction refers to a compulsive behavior with repeated, continuous, uncontrollable, and intense use of short video apps, resulting in addiction symptoms, such as mood modification, salience, conflict, tolerance, withdrawal, and relapse (Tian et al., 2023; Zhang et al., 2024b).

Short video addiction is regarded as a type of internet addiction proposed by Goldberg (1996). The author identified internet addiction as an immoderate and inappropriate use of the internet that harms addicts' mental health. Short video addiction has not been officially included in the ICD-11 or DSM-5, and it needs a distinct criterion and unified definition for addiction levels (Wang et al., 2023). Based on the concept of internet addiction, short video addiction is defined as a specific type of internet addiction and a disorder characterized by inappropriate, dependent, or excessive watching of short videos, impairing personal adaptation and well-being (Nong et al., 2023, February; Ye et al., 2022; Zhang et al., 2019).

More recently, short video addiction, as a special type of behavioral addiction, involves an unhealthy psychological dependence on technology use that leads to one's pathological and obsessive behavior (Griffiths, 2005; Mu et al, 2022; Tian et al., 2023). It has typical behavioral addiction symptoms, including: (1) mood regulation: users use short videos to increase happiness and decrease negative emotions; (2) tolerance: users are eager to use shot videos in increasing amounts or more frequently to get excitement; (3) salience: users keep thinking about short videos that influence their thoughts, feelings, and behaviors; (4) conflict: excessive use of short videos conflicts with user's other activities and leads to interpersonal or intrapersonal issues; (5) relapse: users fail to stop or reduce the short video addiction behavior due to stressors; and (6) withdrawal: users will feel trouble when they are prohibited from using short videos.

General strain theory is developed to explain criminal behavior (Agnew, 1992; Agnew & Brezina; 2015). The theorv interprets how external stressors can lead to deviant behavior. The general strain theory identifies three types of strain: the inability to achieve their valued goals, the presentation of harmful experiences, and the loss of positive and valued experiences, (Agnew, 1992; Agnew, 2006). To illustrate, the theory suggests that significant strain increases the likelihood of individuals engaging in problematic behaviors to cope with or escape these stressors. Various researchers have empirically validated it (Agnew & White, 1992; Ash-Houchen & Lo, 2020; Broidy, 2001; Jang & Johnson, 2003). Meanwhile, many researchers use the theory to examine addiction behaviors, such as mobile phone addiction (Peng et al., 2022), internet addiction (Jun & Choi, 2015), and short video addiction (Zhang et al., 2024b). Meanwhile, Broidy (2001) highlighted that university students have a high tendency to offend under strain. As a result, they are more likely to cope with stressors using ineffective and immature ways. For instance, when stressors result in intense negative emotions and the individual lacks healthy coping strategies, individuals use short video applications excessively to alleviate the discomfort caused by strain (Zhang et al., 2024b).

2.2. Loneliness

This study suggests that loneliness is an emotionally unpleasant state in which people perceive and experience discrepancies between actual and expected social relationships (Heinrich & Gullone, 2006).

Weiss (1975) was the first to introduce the concept of loneliness from a psychological perspective, defining it as a subjective psychological experience triggered by unmet emotional needs during interpersonal interactions. Cacioppo et al. (2002) also argued that loneliness is the individual's sense of insecurity concerning the external environment. Moreover, Weiss (1975) approached loneliness from both emotional and social perspectives. The author illustrated that emotional loneliness occurs when an individual perceives a lack of deep, meaningful relationships or emotional support. On the other hand, social loneliness arises when an individual perceives a disconnection from a social network or lacks a sense of belonging within a group. Based on duration, Gerson and Perlman (1979) classified loneliness into two categories: state loneliness and trait loneliness. State loneliness refers to loneliness as a state, which can be temporary or long-term, while trait loneliness is a personality trait typically because of poor social relationships. Zhu (1989) classified loneliness into active loneliness and passive loneliness. Active loneliness is a spontaneous and psychological state of isolation, arising from an individual's voluntary choice to distance themselves from the group. In contrast, passive loneliness is automatically stimulated by the pressure from external or personal environments. Overall, loneliness is an

unpleasant feeling, different from social isolation or rejection, and stems from a perceived lack of quality or quantity of social connections (Mund & Johnson, 2021; Qualter et al., 2010).

Loneliness can be understood based on the Basic Psvchological Needs Theory, which is a part of the Self-Determination Theory created by Deci and Ryan (2000), elaborates on three basic psychological needs: relatedness, competence, and autonomy (Deci & Ryan, 2000; Ryan et al., 1996). The theory asserts that all three needs are vital for well-being, and if any are unmet, negative outcomes will follow (Ryan & Deci, 2024). To illustrate, contentment of basic psychological needs supports intrinsic motivation, the integration of extrinsic motivations, and natural growth, while hindering these needs results in poorer motivation, performance, and well-being (Deci & Ryan, 2000). Additionally, because these needs are universal, the theory has driven research across various developmental stages and cultural contexts (Ryan & Deci, 2024). Among these needs, relatedness has the strongest negative correlation with loneliness (Martín-Albo et al., 2015; Russell, 1996). For instance, Deci and Ryan (2000) suggest that loneliness arises when basic psychological needs are unmet. Studies show that fulfilling these needs significantly reduces loneliness in adults (Saricali & Guler, 2022; Smith, 2021; Wei et al., 2005).

2.3. Boredom

This research views boredom as a frustrating tendency of wanting to engage with one's surroundings or participate in fulfilling activities, but failing to do so (Struk et al., 2017).

In psychology, researchers still have no consensus on the definition of boredom and have explored boredom from various perspectives (Raffaelli et al., 2018; Westgate & Steidle, 2020). Some researchers operationalize boredom as insufficient or excessive stimulation accompanied by negative emotions, and others define it as a negative emotion related to the lack of goal-directed behavior (Raffaelli et al., 2018). Researchers commonly categorize two types of boredom: trait boredom and state boredom (Elpidorou, 2017). State boredom involves a temporary, passive state of boredom triggered by specific situations, which is immediately present and has a certain level of intensity (Eastwood et al., 2012). In contrast, trait boredom, also regarded as boredom proneness, is a long-term personality tendency and an intrinsic psychological characteristic that reflects a person's propensity to become bored (Elpidorou, 2017; Farmer & Sundberg, 1986). Elpidorou and Freeman (2019) described trait boredom as a pervasive tendency to frequently feel bored in various situations. Differences in boredom propensity among individuals are mainly evident in their cognitive processes regarding internal and external stimuli and their self-regulation abilities. Individuals with high boredom levels tend to perceive their environment in a monotonous and limited way, frequently experiencing a lack of interest and feelings of loneliness and helplessness. Tam et al. (2021) described three important features of boredom propensity: the frequency of experiencing boredom, the overall interpretation of how boring life is, and the intensity of boredom experienced.

Three influencing factors of boredom have been identified based on previous research. First, a general lack of meaning in life leads individuals to find their activities uninteresting and insignificant, resulting in a lower sense of life purpose (Elpidorou, 2017). Second, the failure to engage with the environment and satisfying activities contributes to the state of boredom (Eastwood et al., 2012). Third, deficiencies in attentional function cause frequent failures in maintaining attention during daily tasks, increasing the likelihood of individuals feeling bored (Hsu et al., 2020).

Bench and Lench (2013) proposed the functional model of emotion, which reveals that boredom can be recognized as an emotion that has adaptive functions, aiding in the continuous reorientation of our goals. From a functional viewpoint, Boredom can be seen as a signal for exploration, indicating that it might be more beneficial to abandon the current activity in favor of more rewarding endeavors. Bench and Lench (2019) demonstrated through empirical studies that boredom indicates a lack of satisfaction with the existing activity (i.e., it fails to evoke emotions) and drives individuals to seek new experiences, even if they are negatively hedonistic. As emotions fade, boredom prompts individuals to seek new, alternative experiences when the intensity of the current one diminishes. These findings provide insight into the motivational and behavioral impacts of boredom.

2.4. Emotion Regulation

In this research, emotion regulation is an individual's habitual use of strategies to influence internal emotional states to reduce negative emotions and enhance positive emotions (Gross, 2015). The individual normally employs two regulation strategies: cognitive reappraisal and expression suppression (Gross & John, 2003).

Emotion regulation is defined as the process through which people affect the types, timing, expression, and experience of their emotions (Gross, 1998; Gross & John, 2003). Emotion regulation can be conscious or unconscious, automatic or controlled, influencing various stages of emotion generation. It involves cognitive and behavioral efforts. John et al. (2014) argue that emotion regulation is a stable tendency that remains unchanged across different contexts and times. Similarly, emotion regulation involves the habitual use of specific methods to influence the expression and experience of emotions, often automatically and unconsciously (De Cock et al., 2020; Sirén et al., 2020). In summary, emotion regulation involves managing and controlling one's emotional state to adapt to internal and external demands and challenges.

Cognitive reappraisal and expression suppression are two widely used methods of emotion regulation (Gross, 2015). Cognitive reappraisal alters emotions by changing the way a situation is interpreted, allowing individuals to lessen negative emotions or enhance positive ones. Expression suppression involves inhibiting the external expression of emotions, such as through verbal communication, facial expressions, and body language, without altering the emotional experience itself. These two strategies result in different short-term emotional, cognitive, and behavioral outcomes.

Aldao et al. (2010) proposed Strategy-Based Models, which aim to help individuals consciously and purposefully select and apply appropriate emotion regulation strategies when facing diverse emotional triggers. The Strategy-Based Models classify emotion regulation strategies into two main categories. The first one is adaptive strategies, such as cognitive reinterpretation, problem-solving, and mindfulness strategies. Empirical studies show that adaptive emotion regulation strategies can reduce negative emotions, enhance positive emotions, and help prevent psychological problems like depression and anxiety during negative life events (Brockman et al., 2017; Doorley & Kashdan, 2021). The second category is maladaptive strategies, such as rumination, expressive suppression, and avoidance strategies. Maladaptive emotion regulation strategies can worsen negative emotions and are strongly linked to emotional problems like depression and anxiety, negatively impacting mental health (Montoya-Pérez et al., 2021; Eş kisu et al., 2022). For instance, Davidson (2002) found that individuals regulate emotions by repeatedly reflecting on their moods and problems, but this rumination often worsens emotional issues. Therefore, the efficient selection and application of emotion regulation methods is crucial for maintaining individual mental health. Individuals need to flexibly use various emotion regulation strategies to adapt throughout emotional development (Gross, 2015).

2.5. Loneliness and Short Video Addiction

Loneliness, as a discomfortable state, is a negative result of external stressors, so it can lead to short video addiction (Lu et al., 2022). The general strain model illustrates three primary stressors (Agnew, 1992): the inability to achieve valued goals, exposure to harmful experiences, and the loss of positively valued experiences. Particularly, the stressors, including failure to achieve the goal of relatedness, exposure to harmful relationships, and the loss of interpersonal connections, can evoke feelings of loneliness, increasingly driving individuals to engage in problematic behaviors such as short video addiction (Ryan & Deci, 2024; Zhang et al., 2024b). Moreover, short videos offer entertainment that allows users to select content that alleviates loneliness. In addition, short video users are more easily addicted due to the algorithm-driven, personalized recommendations, colorful content, short duration, and flowing experience in short videos (Anderson, 2020; Huang et al., 2021; Meng & Leung, 2021).

As a new issue, prior researchers have examined the link between loneliness and short video addiction behavior. Zhang (2022, April) investigated Chinese youth and confirmed that loneliness is positively correlated with short video addiction. Rahat et al. (2022) viewed that loneliness is a risk trigger for problematic video-streaming behavior. Yue et al. (2024) investigated university students to determine that loneliness predicted short video addiction.

Similarly, previous researchers confirm a significant link between loneliness and various forms of tech addiction. Baltaci (2019) examined university students and presented that students' social media addiction levels are positively associated with their loneliness levels. Rogier et al. (2021) found that loneliness condition longitudinally affects both social media and gaming addiction. Uyaroğ lu et al. (2022) investigated university students and illustrated that loneliness and social media addiction are significantly correlated. Orsolini et al. (2023) concluded that loneliness significantly results in problematic internet use behavior among the young population. Furthermore, two systematic reviews and meta-analyses, with 21 and 26 studies respectively, concluded a moderately positive connection between internet addiction and loneliness (Ge et al., 2023; Saadati et al., 2021).

2.6. Boredom and Short Video Addiction

Boredom significantly predicts short video addiction (Zhang et al., 2024b). Based on the functional model of emotion, boredom involves a functionally adaptive emotion, driving individuals to seek novel activities and engage in more rewarding endeavors, even if they are negatively hedonistic (Bench & Lench, 2013; Bench & Lench, 2019). Boredom motivates people to watch more videos that elicit their new emotions, such as pleasure and excitement. Meanwhile, users of short video platforms receive personalized content and follow specific creators, which keeps them engaged and can increase addiction risk (Zhang et al., 2019). Moreover, the flow experience from these platforms encourages repeated viewing, raising the likelihood of problematic use (Huang et al., 2021).

Furthermore, the research found that higher boredom in daily life significantly leads to a greater level of short video addiction among adolescents (Lu et al., 2022). Short video addiction is significantly positively correlated with boredom proneness among college students (Xie et al., 2023). Researchers also examined regular TikTok users from China and presented that boredom proneness is significantly correlated with problematic TikTok use (Yao et al., 2023). Nevertheless, similarly, research has determined a significantly positive connection between boredom and internet addiction (Liang et al., 2022; Orsolini et al., 2023; Skues et al., 2016), Facebook addiction (Donati et al., 2022), social media addiction (Allahverdi, 2022; Malik et al., 2024), and smartphone addiction (Malaeb et al, 2022; Wang et al., 2020; Wolniewicz et al., 2020).

2.7. Loneliness and Boredom

Loneliness significantly predicts boredom (Hager et al., 2022; Karababa & Taylı, 2020; Li et al., 2021b). Loneliness is recognized as an emotionally uncomfortable state in which people experience discrepancies between actual and expected social relationships (Heinrich & Gullone, 2006). According to psychological needs theory, relatedness, as a basic psychological need, is the need for a close and supportive connection with others (Deci & Ryan, 2000). Deci and Ryan (2000) suggest that loneliness arises when basic psychological needs are unmet. To illustrate, people who experience loneliness have frustration with relatedness, making individuals feel dissatisfied with life, inhibiting engagement in desired activities, and creating a lack of meaning, which are the features of boredom (Ryan & Deci, 2024; Struk et al., 2017). A previous study assessed a sample of young adults to illustrate that boredom proneness is significantly associated with increased loneliness (Krishnan, 2023), examined Chinese university students and indicated a significant correlation between loneliness and boredom (Li et al., 2021a), and evaluated undergraduate students to confirm the significant relationship between loneliness and boredom (Skues et al., 2016).

2.8. Emotion Regulation and Boredom

Emotion regulation is used to reduce boredom (Noviyanti & Darmawan, 2023). Nakamura et al. (2024) proved that cognitive reappraisal strategy significantly decreases students' boredom levels. Conversely, expression suppression significantly results in increased boredom (Zhao et al, 2022). Scholars presented a significant correlation between emotional dysregulation and boredom (Bambrah et al., 2023; Ciolini et al., 2023). Greenwood and Long (2009) and Weybright et al. (2022) illustrated that emotion regulation difficulty is positively associated with bored mood. Witowska et al. (2020) presented that the emotional regulation of self-regulation decreases one's boredom. Vierhaus et al. (2016) confirmed that anger-related emotion regulation is positively associated with the emergence of boredom. Macklem (2015) identified emotion regulation as an intervention to help students overcome boredom. To sum up, greater emotion regulation significantly decreases boredom.

3. Results

3.1. Boredom as a Mediator between Loneliness and Short Video Addiction

Loneliness significantly affects short video addiction (Yue et al., 2024). Based on the general strain model (Agnew, 1992), this study illustrates that failure to achieve the goal of relatedness, exposure to harmful relationships, and the loss of interpersonal connections can evoke feelings of loneliness, increasingly driving individuals to engage in problematic behaviors such as short video addiction (Ryan & Deci, 2024; Zhang et al., 2024b). Meanwhile, loneliness significantly predicts boredom (Hager et al., 2022; Karababa & Taylı, 2020; Li et al., 2021b). According to psychological needs theory, people who experience loneliness feel frustrated with relatedness, leading to life dissatisfaction, disengagement from activities, and a lack of meaning, which in turn causes bored feelings (Ryan & Deci, 2024; Struk et al., 2017).

Moreover, boredom significantly predicts short video addiction (Lu et al., 2022; Zhang et al., 2024b). The functional model of emotion illustrates that boredom motivates individuals to seek novel activities and engage in more rewarding endeavors, even if they are negatively hedonistic (Bench & Lench, 2013; Bench & Lench, 2019). People who feel bored watch more short videos to actively seek novel or extreme stimulation (Zhang et al., 2024b).

In addition, short video users are more easily addicted due to the algorithm-driven, personalized recommendations, colorful content, short duration, and flowing experience in these videos (Anderson, 2020; Huang et al., 2021; Meng & Leung, 2021).

Furthermore, the impact of loneliness on short video addiction can be mediated by boredom. This hypothesized mediation can be inferred from the findings determined by Zhang et al. (2024b), who studied the mediating effect of boredom between short video addiction and social exclusion. Li et al., (2022) and Li et al. (2021b) determined that boredom proneness mediates the correlation between loneliness and mobile phone addiction among Chinese university students. Thus, this study proposed that boredom mediates the influence of social exclusion on short video addiction among Chinese university students. Greater loneliness leads to increased boredom, which results in short video addiction.

3.2. Emotion Regulation as a Moderator between Loneliness and Boredom

The process model of emotion regulation elaborated on five methods of regulation (Gross, 2015). Among them, cognitive reappraisal and expression suppression are two widely used methods. Empirical studies show that adaptive emotion regulation strategies can reduce negative emotions, enhance positive emotions, and help prevent psychological problems like depression and anxiety during negative life events (Brockman et al., 2017; Doorley & Kashdan, 2021). For instance, cognitive reappraisal which involves changing the interpretation of a situation, can help individuals reinterpret their loneliness in a less threatening way, thereby potentially preventing it from leading to boredom (Gross, 2015; Ochsner & Gross, 2005). Conversely, maladaptive emotion regulation strategies can worsen negative emotions and are strongly linked to emotional problems like depression and anxiety, negatively impacting psychological health (Eş kisu et al., 2022; Montoya-Pérez et al., 2021). For example, expression suppression, which inhibits the external expression of emotions, can intensify the negative effects of loneliness, thereby increasing the likelihood of boredom (Brans et al., 2013; Gross, 1998; Gross, 2015).

Many researchers illustrated the positive correlation between loneliness and emotion regulation (Karababa, 2020; Nikmanesh et al., 2015; Yun et al., 2021; Shi et al., 2016). Hayes et al. (2022) identified the contribution of emotion regulation to loneliness. Tan et al. (2022) presented that people using greater maladaptive strategies and lesser adaptive strategies have higher loneliness. Especially, O'Day et al. (2019) and Preece et al. (2021) explained that individuals, who apply more expression suppression and less cognitive reappraisal, experience greater loneliness. Furthermore, Eres et al. (2021) reported that individuals with social anxiety disorder face greater challenges in regulating their emotions, which contributes to increased loneliness. Jiang et al. (2022) and Velotti et al. (2021) also found that loneliness significantly correlates with emotion dysregulation.

In conclusion, loneliness significantly predicts boredom (Hager et al., 2022; Karababa & Taylı, 2020; Li et al., 2021b). Moreover, emotion regulation is used to reduce boredom (Nett et al., 2010; Noviyanti & Darmawan, 2023). People who use cognitive reappraisal experience less boredom (Nakamura et al., 2024) and those who use expression suppression experience increased boredom (Zhu & Dong, 2020), Therefore, this study suggested that emotion regulation can moderate the relationship between loneliness and boredom among Chinese university students. Particularly, students who use cognitive reappraisal experience less boredom, preventing short video addiction. Conversely, students who use expression suppression experience greater boredom, leading to the development of short video addiction.

3.3. Conceptual Framework



4. Limitations

First, the conceptual framework was established based on the interpretation of existing literature, which may introduce bias into the research. Additionally, the study did not include empirical testing, limiting the ability to confirm the proposed relationships. Future research could employ quantitative studies to verify the relationship between loneliness, boredom, emotion regulation, and short video addiction among Chinese university students.

Second, without empirical validation, the findings are restricted to use in the development of practical interventions. Future research could conduct qualitative studies to verify these influencing factors of short video addiction and employ experimental methods to determine the effectiveness of specific interventions related to this addiction.

Third, the study examined the contributing factors of short video addiction solely among Chinese university students, which limits the conceptual framework's applicability across different populations. Future research may assess whether the proposed model generalizes across different populations, settings, and cultural contexts.

5. Conclusion

As short video applications are widely and excessively used, particularly among younger populations, understanding the mechanisms behind short video addiction is essential. Based on previous research, loneliness is a significant positive predictor of short video addiction. Boredom can play a mediator in this dynamic in which users with greater loneliness experience increased boredom, which in turn results in short video addiction. Furthermore, emotion regulation can moderate the relationship between loneliness and boredom. To illustrate, adaptive strategies, such as cognitive reappraisal, empower individuals to manage their loneliness more effectively, potentially reducing feelings of boredom and preventing short video addiction. Conversely, maladaptive strategies, particularly expression suppression, exacerbate loneliness and boredom, potentially increasing the likelihood of short video addiction.

The study advanced the understanding of how loneliness, boredom, and emotion regulation contribute to short video addiction behavior, particularly in the context of university students. The findings contributed to the growing body of literature on short video addiction, paving the way for further research in this critical area and providing a theoretical foundation for future empirical research. Meanwhile, the results offered valuable insights for educators, mental health professionals, and policymakers concerned with the influence of short video applications on youth. Moreover, this study can inform the development of targeted interventions aimed at enhancing emotion regulation skills and promoting healthy coping strategies to mitigate the risk of short video addiction. Ultimately, the study's findings may also apply to broader populations facing similar digital addiction challenges.

References

- Agnew, R. (1992). Foundation for a General Strain Theory of Crime and Delinquency. *Criminology*, 30(1), 47-88. https://doi.org/10.1111/j.1745-9125.1992.tb01093.x
- Agnew, R. (2001). Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, *38*, 319-361. https://doi.org/10.1177/0022427801038004001
- Agnew, R. (2006). Pressured into crime: An overview of general strain theory. Los Angeles, CA: Roxbury. https://doi.org/10.1177/0092055X0703500317
- Agnew, R., & White, H. R. (1992). An empirical test of general strain theory. *Criminology*, *30*(4), 475-500. https://doi.org/10.1111/j.1745-9125.1992.tb01113
- Agnew, R., & Brezina, T. (2015). Juvenile delinquency: Causes and control (5th ed.). New York: Oxford University Press. https://doi.org/10.1002/9781118701386.ch18
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotionregulation strategies across psychopathology: A meta-analytic review. *Clinical psychology review*, 30(2), 217-237. https://doi.org/10.1016/j.cpr.2009.11.004
- Allahverdi, F. Z. (2022). Trait boredom and perceived social media addiction relationship. *Journal of Positive School Psychology*, 6(2), 5024-5036.
- Anderson, K. E. (2020). Getting acquainted with social networks and apps: it is time to talk about TikTok. *Library hi tech news*, 37(4), 7-12. <u>https://doi.org/10.1108/LHTN-01-2020-</u> 0001
- Ash-Houchen, W., & Lo, C. C. (2020). Racial/ethnic differences in illicit substance use: A temporal-ordered test of general strain theory. *Journal of Drug Issues*, 50(2), 209-230. https://doi.org/10.1177/0022042620904707
- Baltaci, Ö. (2019). The predictive relationships between the social media addiction and social anxiety, loneliness, and happiness. *International Journal of Progressive Education*, 15(4), 73-82. https://doi.org/10.29329/ijpe.2019.203.6
- Bambrah, V., Wyman, A., & Eastwood, J. D. (2023). A longitudinal approach to understanding boredom during pandemics: The predictive roles of trauma and emotion dysregulation. *Frontiers in Psychology*, *13*, 1050073. https://doi.org/10.3389/fpsyg.2022.1050073
- Bench, S. W., & Lench, H. C. (2013). On the function of boredom. Behavioral Sciences, 3 (3), 459-472. https://doi.org/10.3390%2Fbs3030459
- Bench, S. W., & Lench, H. C. (2019). Boredom as a seeking state: Boredom prompts the pursuit of novel (even negative) experiences. *Emotion*, 19(2), 242. <u>https://doi.org/10.1037/emo0000433</u>
- Brans, K., Koval, P., Verduyn, P., Lim, Y. L., & Kuppens, P. (2013). The regulation of negative and positive affect in daily life. *Emotion*, 13(5), 926. <u>https://doi.org/10.1037/a0032400</u>
- Brockman, R., Ciarrochi, J., Parker, P., & Kashdan, T. (2017). Emotion regulation strategies in daily life: Mindfulness, cog-

nitive reappraisal and emotion suppression. *Cognitive Behaviour Therapy*, 46(2), 91-113. https://doi.org/10.1080/16506073.2016.1218926

- Broidy, L. M. (2001). A test of general strain theory. *Criminology*, 39(1), 9-36. <u>https://doi.org/10.1111/j.1745-</u>9125.2001.tb00915.x
- Cacioppo, J. T., Hawkley, L. C., Crawford, L. E., Ernst, J. M., Burleson, M. H., Kowalewski, R. B., ... & Berntson, G. G. (2002). Loneliness and health: Potential mechanisms. *Psychosomatic medicine*, 64(3), 407-417. <u>https://doi.org/10.1097/00006842-200205000-00005</u>
- Chen, Y., Li, M., Guo, F., & Wang, X. (2023). The effect of shortform video addiction on users' attention. *Behaviour & Information Technology*, 42(16), 2893-2910. <u>https://doi.org/10.1080/0144929X.2022.2151512</u>
- Cheng, Y., & Liu, H. (2024). Effect of short video addiction on sleep quality in college students: moderated mediating effect. *China Journal of Health Psychology*, 32(2), 251–257. <u>https://doi.org/10.3389%2Ffpsyg.2023.1287735</u>
- China Internet Network Information Center (Ed.) (2024). *The 53rd* statistical report on China's Internet development. China Internet Network Information Center. <u>https://www.cnnic.com.cn/IDR/ReportDown-</u> loads/202405/P020240509518443205347.pdf
- China Netcasting Services Association (Ed.) (2024). China Internet audio-visual development research report (2024). China Netcasting Services Association. http://www.cnsa.cn/art/2024/3/28/art 1977 43660.html
- Coifman, K. G., Bonanno, G. A., Ray, R. D., & Gross, J. J. (2007). Does repressive coping promote resilience? Affective-autonomic response discrepancy during bereavement. *Journal of Personality and Social Psychology*, 92(4), 745-758. <u>https://doi.org/10.1037/0022-3514.92.4.745</u>
- Davidson, R. J., Lewis, D. A., Alloy, L. B., Amaral, D. G., Bush, G., Cohen, J. D., ... & Peterson, B. S. (2002). Neural and behavioral substrates of mood and mood regulation. *Biological Psychiatry*, 52(6), 478-502. <u>https://doi.org/10.1016/s0006-3223(02)01458-0</u>
- De Cock, R., Denoo, L., & Clarysse, B. (2020). Surviving the emotional rollercoaster called entrepreneurship: The role of emotion regulation. *Journal of Business Venturing*, *35*(2), 105936. <u>https://doi.org/10.1016/j.jbusvent.2019.04.004</u>
- Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, *11*(4), 227-268. <u>https://doi.org/10.1207/s15327965pli1104_01</u>
- Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. *Handbook of theories of social psychology*, *I*(20), 416-436. <u>https://doi.org/10.4135/9781446249215.n21</u>
- Donati, M. A., Beccari, C., & Primi, C. (2022). Boredom and problematic Facebook use in adolescents: What is the relationship considering trait or state boredom?. *Addictive Behaviors*, 125, 107132. <u>https://doi.org/10.1016/j.addbeh.2021.107132</u>
- Doorley, J. D., & Kashdan, T. B. (2021). Positive and negative emotion regulation in college athletes: A preliminary exploration of daily savoring, acceptance, and cognitive reappraisal. *Cognitive Therapy and Research*, 45, 598-613. <u>https://doi.org/10.1007/s10608-020-10202-4</u>
- Eastwood, J. D., Frischen, A., Fenske, M. J., & Smilek, D. (2012). The unengaged mind: Defining boredom in terms of attention. *Perspectives on psychological science*, 7(5), 482-495. <u>https://doi.org/10.1177/1745691612456044</u>

- Elpidorou, A. (2017). The moral dimensions of boredom: A call for research. *Review of General Psychology*, 21(1), 30-48. https://doi.org/10.1037/gpr0000098
- Elpidorou, A., Freeman, L. (2019). Is Profound Boredom Boredom?. In: Hadjioannou, C. (eds) Heidegger on Affect. Philosophers in Depth. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-24639-6_8
- Eres, R., Lim, M. H., Lanham, S., Jillard, C., & Bates, G. (2021). Loneliness and emotion regulation: Implications of having social anxiety disorder. *Australian Journal of Psychology*, 73(1), 46-56. <u>https://doi.org/10.1080/00049530.2021.1904498</u>
- Eş kisu, M., Ağ ı rkan, M., Çelik, O., Yalçı n, R. Ü., & Haspolat, N. K. (2022). Do the highly sensitive people tend to have psychological problems because of low emotion regulation and dysfunctional attitudes?. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 40(4), 683-706. https://doi.org/10.1007/s10942-021-00436-w
- Farmer, R., & Sundberg, N. D. (1986). Boredom proneness--the development and correlates of a new scale. *Journal of Personality* Assessment, 50(1), 4-17. <u>https://doi.org/10.1207/s15327752jpa5001_2</u>
- Ge, M. W., Hu, F. H., Jia, Y. J., Tang, W., Zhang, W. Q., Zhao, D. Y., ... & Chen, H. L. (2023). The relationship between loneliness and Internet or smartphone addiction among adolescents: a systematic review and meta-analysis. *Psychological Reports*, 00332941231180119.
- https://doi.org/10.1177/00332941231180119 Gerson, A. C., & Perlman, D. (1979). Loneliness and expressive communication. *Journal of Abnormal Psychology*, 88(3), 258.
- https://doi.org/10.1037//0021-843x.88.3.258 Goldberg, I. (1996). Internet addiction disorder. *CyberPsychol. Behavior*, 3(4), 403-412.

havior, 3(4), https://doi.org/10.1016/j.sbspro.2015.04.292

- Greenwood, D. N., & Long, C. R. (2009). Mood specific media use and emotion regulation: Patterns and individual differences. *Personality and Individual Differences*, 46(5-6), 616-621. <u>https://doi.org/10.1016/j.paid.2009.01.002</u>
- Griffiths, M. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance use*, *10*(4), 191-197. https://doi.org/10.1080/14659890500114359
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of general psychology*, 2(3), 271-299. <u>https://doi.org/10.1037/1089-2680.2.3.271</u>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1-26. https://doi.org/10.1080/1047840X.2014.940781
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *Journal of personality and social psychology*, 85(2), 348. <u>https://doi.org/10.1037/0022-3514.85.2.348</u>
- Hager, N. M., Judah, M. R., & Milam, A. L. (2022). Loneliness and depression in college students during the COVID-19 pandemic: The role of boredom and repetitive negative thinking. *International Journal of Cognitive Therapy*, 15(2), 134-152. <u>https://doi.org/10.1007/s41811-022-00135-z</u>
- Harris, M. B. (2000). Correlates and characteristics of boredom proneness and boredom. *Journal of Applied Social Psychol*ogy, 30(3), 576–598. <u>https://doi.org/10.1111/j.1559-</u> <u>1816.2000.tb02497.x</u>

- Hayes, S., Carlyle, M., Haslam, S. A., Haslam, C., & Dingle, G. (2022). Exploring links between social identity, emotion regulation, and loneliness in those with and without a history of mental illness. *British Journal of Clinical Psychology*, 61(3), 701-734. <u>https://doi.org/10.1111/bjc.12358</u>
- Heinrich, L. M., & Gullone, E. (2006). The clinical significance of loneliness: A literature review. *Clinical Psychology Review*, 26(6), 695-718. <u>https://doi.org/10.1016/j.cpr.2006.04.002</u>
- Hsu, C. F., Eastwood, J. D., Toplak, M. E., Liang, J. C., Hwang-Gu, S. L., & Chen, V. C. H. (2020). Trait and state boredom: associations with attention failure in children with Attention-Deficit/Hyperactivity Disorder. *Psychiatry Res*, 286(112861), 10-1016. <u>https://doi.org/10.1016/j.psychres.2020.112861</u>
- Huang, K., & Ch'ng, L. K. (2024). Exploring the Causes and Solutions for Short Video Addiction Among College Students in China. *International Journal of Education and Research*, 12(7), 127-138.
- Huang, Q., Hu, M., & Chen, H. (2021). Exploring stress and problematic use of short-form video applications among middleaged Chinese adults: the mediating roles of duration of use and flow experience. *International journal of environmental research and public health*, 19(1), 132. <u>https://doi.org/10.3390%2Fijerph19010132</u>
- Jang, S. J., & Johnson, B. R. (2003). Strain, negative emotions, and deviant coping among African Americans: A test of general strain theory. *Journal of quantitative criminology*, 19, 79-105. <u>https://doi.org/10.1023/A:1022570729068</u>
- Jianfeng, H., Xian, Z., & Zexiu, A. (2024). Effects of physical exercise on adolescent short video addiction: A moderated mediation model. *Heliyon*, 10(8). <u>https://doi.org/10.1016/j.heliyon.2024.e29466</u>
- Jiang, Q., Zhao, F., Xie, X., Wang, X., Nie, J., Lei, L., & Wang, P. (2022). Difficulties in emotion regulation and cyberbullying among Chinese adolescents: A mediation model of loneliness and depression. *Journal of interpersonal violence*, 37(1-2), NP1105-NP1124. https://doi.org/10.1177/0886260520917517
- John, O. P., & Eng, J. (2014). Three approaches to individual differences in affect regulation: Conceptualizations, measures, and findings. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 321-345). The Guilford Press.
- Jun, S., & Choi, E. (2015). Academic stress and Internet addiction from general strain theory framework. *Computers in Human Behavior*, 49, 282-287. https://doi.org/10.1016/j.chb.2015.03.001
- Karababa, A. (2020). The relationship between trait anger and loneliness among early adolescents: The moderating role of emotion regulation. *Personality and Individual Differences*, 159, 109856. <u>https://doi.org/10.1016/j.paid.2020.109856</u>
- Karababa, A., & Taylı, A. (2020). Basic needs, loneliness and life satisfaction as predictors of boredom among university students. *Cukurova University Faculty of Education Journal*, 49(2), 600-627. <u>https://doi.org/10.14812/cuefd.673201</u>
- Kaye, D. B. V., Chen, X., & Zeng, J. (2021). The co-evolution of two Chinese mobile short video apps: Parallel platformization of Douyin and TikTok. *Mobile Media & Communication*, 9(2), 229-253. <u>https://doi.org/10.1177/2050157920952120</u>
- Kaye, D. B. V., Zeng, J., & Wikstrom, P. (2022). *TikTok: Creativity and culture in short video*. John Wiley & Sons.

- Krishnan, V. V. (2023). The Effect of Loneliness, Social Isolation, and Boredom on Creativity During COVID-19. Confluence: Journal of Interdisciplinary Studies, 1.
- Li, L., Niu, Z., Griffiths, M. D., Wang, W., Chang, C., & Mei, S. (2021a). A network perspective on the relationship between gaming disorder, depression, alexithymia, boredom, and loneliness among a sample of Chinese university students. *Technology in Society*, 67, 101740. <u>https://doi.org/10.1016/j.techsoc.2021.101740</u>
- Li, X., Feng, X., Xiao, W., & Zhou, H. (2021b). Loneliness and mobile phone addiction among Chinese college students: the mediating roles of boredom proneness and self-control. *Psychology research and behavior management*, 687-694. <u>https://doi.org/10.2147/prbm.s315879</u>
- Li, X., Qin, H. X., Zeng, M. H., He, Y. X., & Ma, M. Z. (2021c). Relationship between short video addiction symptom and personality trait among college students. *Chinese Mental Health Journal*, 35(11), 925-928.
- Li, X., Zhou, H., & Xiao, W. (2022). Boredom proneness and core self- evaluation as mediators between loneliness and mobile phone addiction among Chinese college students. *Psychology in the Schools*, 59(3), 628-638. <u>https://doi.org/10.1002/pits.22635</u>
- Liang, L., Li, C., Meng, C., Guo, X., Lv, J., Fei, J., & Mei, S. (2022). Psychological distress and internet addiction following the COVID-19 outbreak: Fear of missing out and boredom proneness as mediators. *Archives of Psychiatric Nursing*, 40, 8-14. <u>https://doi.org/10.1016/j.apnu.2022.03.007</u>
- Lu, L., Liu, M., Ge, B., Bai, Z., & Liu, Z. (2022). Adolescent addiction to short video applications in the mobile internet era. *Frontiers* in *Psychology*, 13, 893599. https://doi.org/10.3389/fpsyg.2022.893599
- Macklem, G. L. (2015). Boredom in the classroom: Addressing student motivation, self-regulation, and engagement in learning (Vol. 1). Springer. <u>https://doi.org/10.1007/978-3-319-13120-7</u>
- Malaeb, D., Akel, M., Salameh, P., Hallit, S., & Obeid, S. (2022). Boredom proneness, loneliness, and smartphone addiction among Lebanese young adults: the mediating role of depression, anxiety, and stress. *The primary care companion for CNS* disorders, 24(6), 43747. https://doi.org/10.4088/pcc.21m03092
- Malik, L., Shahnawaz, M. G., Rehman, U., Pragyendu, Uniyal, R., & Griffiths, M. D. (2024). Mediating roles of fear of missing out and boredom proneness on psychological distress and social media addiction among Indian adolescents. *Journal of Technology in Behavioral Science*, 9(2), 224-234. https://doi.org/10.1007%2Fs41347-023-00323-4
- Martín-Albo, J., Lombas, A. S., Jiménez, T. I., Valdivia-Salas, S., Núñez, J. L., & León, J. (2015). The mediating role of relatedness between repair and loneliness: A preliminary model in high school students. *Journal of Happiness Studies*, 16, 1131-1148. <u>https://doi.org/10.1007/s10902-014-9550-3</u>
- Meng, K. S., & Leung, L. (2021). Factors influencing TikTok engagement behaviors in China: An examination of gratifications sought, narcissism, and the Big Five personality traits. *Telecommunications Policy*, 45(7), 102172. https://doi.org/10.1016/j.telpol.2021.102172
- Montoya-Pérez, K. S., Montes-Delgado, R., de la Roca Chiapas, J. M., Montoya-Pérez, R., & Padrós-Blázquez, F. (2021). Sensory processing sensitivity and adult attachment in emotional

regulation difficulties. *Psychology*, *12*(11), 1848-1862. https://doi.org/10.4236/psych.2021.1211111

- Mu, H., Jiang, Q., Xu, J., & Chen, S. (2022). Drivers and consequences of short-form video (SFV) addiction amongst adolescents in China: Stress-coping theory perspective. *International Journal of Environmental Research and Public Health*, 19(21), 14173. <u>https://doi.org/10.3390/ijerph192114173</u>
- Mu, W., Kong, L., & He, A. (2024). Understanding Emptiness in a Chinese Sample: Cross-cultural Validation, Latent Profile Analysis, and Association with Short-Form Video Addiction. *International Journal of Mental Health and Addiction*, 1-22. <u>https://doi.org/10.1007/s11469-024-01327-8</u>
- Mund, M., & Johnson, M. D. (2021). Lonely me, lonely you: Loneliness and the longitudinal course of relationship satisfaction. *Journal of Happiness Studies*, 22(2), 575-597. https://doi.org/10.1007/s10902-020-00241-9
- Nakamura, S., Darasawang, P., & Reinders, H. (2024). A practitioner study on the implementation of strategy instruction for boredom regulation. *Language Teaching Research*, 28(2), 786-808. <u>https://doi.org/10.1177/13621688211010272</u>
- Nett, U. E., Goetz, T., & Daniels, L. M. (2010). What to do when feeling bored?: Students' strategies for coping with boredom. *Learning and Individual Differences*, 20(6), 626-638. <u>https://doi.org/10.1016/j.lindif.2010.09.004</u>
- Nikmanesh, Z., Kazemi, Y., & Khosravi, M. (2015). Role of feeling of loneliness and emotion regulation difficulty on drug abuse. *Journal of Community Health Research*, 4(1), 55-64. <u>https://doi.org/10.22037/ijmtfm.v5i4(Autumn).8744</u>
- Nong, W., He, Z., Ye, J. H., Wu, Y. F., Wu, Y. T., Ye, J. N., & Sun, Y. (2023, February). The relationship between short video flow, addiction, serendipity, and achievement motivation among Chinese vocational school students: the post-epidemic era context. In *Healthcare* (Vol. 11, No. 4, p. 462). MDPI. <u>https://doi.org/10.3390/healthcare11040462</u>
- Noviyanti, D. V., & Darmawan, D. (2023). The role of academic tutoring and emotion regulation in mitigating learning boredom among students at SMA Khairunnas Gunung Anyar Surabaya. Jurnal Cahaya Mandalika ISSN 2721-4796 (online), 4(2), 1334-1342. https://doi.org/10.31004/joe.v6i4.6036
- Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in cognitive sciences*, 9(5), 242-249. <u>https://doi.org/10.1016/j.tics.2005.03.010</u>
- O'Day, E. B., Morrison, A. S., Goldin, P. R., Gross, J. J., & Heimberg, R. G. (2019). Social anxiety, loneliness, and the moderating role of emotion regulation. *Journal of Social and Clinical Psychology*, 38(9), 751-773. https://doi.org/10.1521/jscp.2019.38.9.751
- Orsolini, L., Longo, G., & Volpe, U. (2023). The mediatory role of the boredom and loneliness dimensions in the development of problematic internet use. *International Journal of Environmental Research and Public Health*, 20(5), 4446. <u>https://doi.org/10.3390/ijerph20054446</u>
- Peng, Y., Zhou, H., Zhang, B., Mao, H., Hu, R., & Jiang, H. (2022). Perceived stress and mobile phone addiction among college students during the 2019 coronavirus disease: The mediating roles of rumination and the moderating role of self-control. *Personality and Individual Differences*, 185, 111222. https://doi.org/10.1016/j.paid.2021.111222

- Preece, D. A., Goldenberg, A., Becerra, R., Boyes, M., Hasking, P., & Gross, J. J. (2021). Loneliness and emotion regulation. *Personality and Individual Differences, 180*, 110974. <u>https://doi.org/10.1016/j.paid.2021.110974</u>
- Qu, D., Liu, B., Jia, L., Zhang, X., Chen, D., Zhang, Q., ... & Chen, R. (2024). The longitudinal relationships between short video addiction and depressive symptoms: a cross-lagged panel network analysis. *Computers in Human Behavior*, 152, 108059. <u>https://doi.org/10.1016/j.chb.2023.108059</u>
- Qualter, P., Brown, S. L., Munn, P., & Rotenberg, K. J. (2010). Childhood loneliness as a predictor of adolescent depressive symptoms: an 8-year longitudinal study. *European Child & Adolescent Psychiatry*, *19*, 493-501. <u>https://doi.org/10.1007/s00787-009-0059-y</u>
- Raffaelli, Q., Mills, C., & Christoff, K. (2018). The knowns and unknowns of boredom: A review of the literature. *Experimental Brain Research*, 236, 2451-2462. <u>https://doi.org/10.1007/s00221-017-4922-7</u>
- Rahat, M., Mojgani, J., Lethbridge, G., Al-Bya, H., Patterson, B., Bergmann, C. G., & Van Ameringen, M. (2022). Problematic video-streaming: A short review. *Current Opinion in Behavioral* Sciences, 48, 101232. <u>https://doi.org/10.1016/j.cobeha.2022.101232</u>
- Ray, R. D., Wilhelm, F. H., & Gross, J. J. (2008). All in the mind's eye? Anger rumination and reappraisal. *Journal of Personality and Social Psychology*, 94(1), 133-145. https://doi.org/10.1037/0022-3514.94.1.133
- Rogier, G., Beomonte Zobel, S., & Velotti, P. (2021). COVID-19, Loneliness and Technological Addiction: Longitudinal Data. Journal of Gambling Issues, 47. https://doi.org/10.4309/jgi.2021.47.4
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, 66(1), 20-40. https://doi.org/10.1207/s15327752jpa6601_2
- Ryan, R. M., & Deci, E. L. (2024). Self-determination theory. In *Encyclopedia of quality of life and well-being research* (pp. 6229-6235). Cham: Springer International Publishing. https://doi.org/10.1007/978-94-007-0753-5_2630
- Saadati, H. M., Mirzaei, H., Okhovat, B., & Khodamoradi, F. (2021). Association between internet addiction and loneliness across the world: A meta-analysis and systematic review. *SSM-population health*, *16*, 100948. https://doi.org/10.1016/j.ssmph.2021.100948
- Saricali, M., & Guler, D. (2022). The mediating role of psychological need frustration on the relationship between frustration intolerance and existential loneliness. *Current Psychol*ogy, 41(8), 5603-5611. <u>https://doi.org/10.1007/s12144-022-</u> 02866-w
- Shi, R., Zhang, S., Zhang, Q., Fu, S., & Wang, Z. (2016). Experiential avoidance mediates the association between emotion regulation abilities and loneliness. *PloS one*, 11(12), e0168536. <u>https://doi.org/10.1371/journal.pone.0168536</u>
- Sirén, C., He, V. F., Wesemann, H., Jonassen, Z., Grichnik, D., & von Krogh, G. (2020). Leader emergence in nascent venture teams: The critical roles of individual emotion regulation and team emotions. *Journal of Management Studies*, 57(5), 931-961. <u>https://doi.org/10.1111/joms.12563</u>
- Skues, J., Williams, B., Oldmeadow, J., & Wise, L. (2016). The effects of boredom, loneliness, and distress tolerance on problem internet use among university students. *International*

Journal of Mental Health and Addiction, 14, 167-180. https://doi.org/10.1007/s11469-015-9568-8

- Smith, K. M. (2021). Emerging adult loneliness, basic psychological needs, and well-being: theoretical and empirical implications (Doctoral dissertation, The University of Iowa). <u>https://doi.org/10.17077/etd.006078</u>
- Struk, A. A., Carriere, J. S., Cheyne, J. A., & Danckert, J. (2017). A short boredom proneness scale: Development and psychometric properties. Assessment, 24(3), 346-359. <u>https://doi.org/10.1177/1073191115609996</u>
- Tam, K. Y., Van Tilburg, W. A., & Chan, C. S. (2021). What is boredom proneness? A comparison of three characterizations. *Journal of personality*, 89(4), 831-846. <u>https://doi.org/10.1111/jopy.12618</u>
- Tan, A. J., Mancini, V., Gross, J. J., Goldenberg, A., Badcock, J. C., Lim, M. H., ... & Preece, D. A. (2022). Loneliness versus distress: A comparison of emotion regulation profiles. *Behaviour Change*, 39(3), 180-190. https://doi.org/10.1017/bec.2022.18
- Tian, X., Bi, X., & Chen, H. (2023). How short-form video features influence addiction behavior? Empirical research from the opponent process theory perspective. *Information Technology & People*, 36(1), 387–408. <u>https://doi.org/10.1108/itp-04-2020-0186</u>
- Uyaroğ lu, A. K., Ergin, E., Tosun, A. S., & Erdem, Ö. (2022). A cross- sectional study of social media addiction and social and emotional loneliness in university students in Turkey. *Perspectives in Psychiatric Care*, 58(4), 2263-2271. <u>https://doi.org/10.1111/ppc.13056</u>
- Velotti, P., Rogier, G., Beomonte Zobel, S., Castellano, R., & Tambelli, R. (2021). Loneliness, emotion dysregulation, and internalizing symptoms during coronavirus disease 2019: a structural equation modeling approach. *Frontiers in Psychiatry*, 11, 581494. <u>https://doi.org/10.3389/fpsyt.2020.581494</u>
- Vierhaus, M., Lohaus, A., & Wild, E. (2016). The development of achievement emotions and coping/emotion regulation from primary to secondary school. *Learning and Instruction*, 42, 12-21. <u>https://doi.org/10.1016/j.learninstruc.2015.11.002</u>
- Wang, J., Wang, M., & Lei, L. (2023). Longitudinal links among paternal and maternal harsh parenting, adolescent emotional dysregulation and short-form video addiction. *Child Abuse & Neglect*, 141, 106236. https://doi.org/10.1016/j.chiabu.2023.106236
- Wang, Z., Yang, X., & Zhang, X. (2020). Relationships among boredom proneness, sensation seeking and smartphone addiction among Chinese college students: Mediating roles of pastime, flow experience and self-regulation. *Technology in Society*, 62, 101319. <u>https://doi.org/10.1016/j.techsoc.2020.101319</u>
- Webb, T. L., Miles, E., & Sheeran, P. (2012). Dealing with feeling: a meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation. *Psychological bulletin*, 138(4), 775. <u>https://doi.org/10.1037/a0027600</u>
- Wei, M., Shaffer, P. A., Young, S. K., & Zakalik, R. A. (2005). Adult attachment, shame, depression, and loneliness: the mediation role of basic psychological needs satisfaction. *Journal* of Counseling Psychology, 52(4), 591. <u>https://doi.org/10.1037/0022-0167.52.4.591</u>
- Weiss, R. (1975). Loneliness: The experience of emotional and social isolation. MIT Press. <u>https://doi.org/10.2307/2062224</u>

- Westgate, E. C., & Steidle, B. (2020). Lost by definition: Why boredom matters for psychology and society. *Social and Personality Psychology Compass*, 14(11), e12562. <u>https://doi.org/10.31234/osf.io/q9fd5</u>
- Weybright, E. H., Doering, E. L., & Perone, S. (2022). Difficulties with emotion regulation during COVID-19 and associations with boredom in college students. *Behavioral Sciences*, 12(8), 296. <u>https://doi.org/10.3390/bs12080296</u>
- Witowska, J., Schmidt, S., & Wittmann, M. (2020). What happens while waiting? How self-regulation affects boredom and subjective time during a real waiting situation. Acta Psychologica, 205, 103061. <u>https://doi.org/10.1002/hbe2.159</u>
- Wolniewicz, C. A., Rozgonjuk, D., & Elhai, J. D. (2020). Boredom proneness and fear of missing out mediate relations between depression and anxiety with problematic smartphone use. *Human Behavior and Emerging Technologies*, 2(1), 61-70. https://doi.org/10.1002/hbe2.159
- Xie, J., Xu, X., Zhang, Y., Tan, Y., Wu, D., Shi, M., & Huang, H. (2023). The effect of short-form video addiction on undergraduates' academic procrastination: a moderated mediation model. *Frontiers in Psychology*, 14, 1298361. <u>https://doi.org/10.3389/fpsyg.2023.1298361</u>
- Yao, N., Chen, J., Huang, S., Montag, C., & Elhai, J. D. (2023). Depression and social anxiety in relation to problematic Tik-Tok use severity: The mediating role of boredom proneness and distress intolerance. *Computers in Human Behavior*, 145, 107751. <u>https://doi.org/10.1016/j.chb.2023.107751</u>
- Ye, J. H., He, Z., Yang, X., Lee, Y. S., Nong, W., Ye, J. N., & Wang, C. L. (2023, March). Predicting the learning avoidance motivation, learning commitment, and silent classroom behavior of Chinese vocational college students caused by short video addiction. In *Healthcare* (Vol. 11, No. 7, p. 985). MDPI. https://doi.org/10.3390/healthcare11070985
- Ye, J. H., Wu, Y. T., Wu, Y. F., Chen, M. Y., & Ye, J. N. (2022). Effects of short video addiction on the motivation and wellbeing of Chinese vocational college students. *Frontiers in Public Health*, *10*, 847672. <u>https://doi.org/10.3389/fpubh.2022.847672</u>
- Yue, H., Yang, G., Bao, H., Bao, X., & Zhang, X. (2024) Linking negative cognitive bias to short- form video addiction: The mediating roles of social support and loneliness. *Psychology* in the Schools. <u>https://doi.org/10.1002/pits.23260</u>
- Yun, P., Xiaohong, H., Zhongping, Y., & Zhujun, Z. (2021). Family function, loneliness, emotion regulation, and hope in secondary vocational school students: A moderated mediation model. *Frontiers in Public Health*, 9, 722276. https://doi.org/10.3389/fpubh.2021.722276
- Zhang, D., Yang, Y., & Guan, M. (2024a). A cross-lagged analysis of the relationship between short video overuse behavior and depression among college students. *Frontiers in Psychol*ogy, 15, 1345076. https://doi.org/10.3389/fpsyg.2024.1345076
- Zhang, X., Wu, Y., & Liu, S. (2019). Exploring short-form video application addiction: Socio-technical and attachment perspectives. *Telematics and Informatics*, 42, 101243. https://doi.org/10.1016/j.tele.2019.101243
- Zhang, Y. (2022, April). How psychological factors impact Chinese youth Tik Tok addiction. In 2022 International Conference on Social Sciences and Humanities and Arts (SSHA 2022) (pp. 43-50). Atlantis Press. <u>https://doi.org/10.2991/assehr.k.220401.009</u>

- Zhang, Y., Bu, R., & Li, X. (2024b). Social Exclusion and Short Video Addiction: The Mediating Role of Boredom and Self-Control. Psychology Research and Behavior Management, 2195-2203. <u>https://doi.org/10.2147/prbm.s463240</u>
- Zhao, T., Ye, L., Hu, Z., & Fu, Z. (2022). A serial mediation model of the relationship between suppression emotion-regulation tendency and outcomes of MOOC learning by Chinese university students: The role of cognitive appraisals, boredom, and behavioral avoidance. *Computers & Education*, 187, 104549. <u>https://doi.org/10.1016/j.compedu.2022.104549</u>
- Zhu, Z. X. (1989). Dictionary of Psychology [心理学大辞典]. Beijing Normal University Press.