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Research Paper

# The relationship between loneliness and short-form video addiction: A moderated mediation model.

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#### **ABSTRACT**

Short-form video addiction has emerged as a detrimental factor impacting the mental health of college students. This study investigated the mediating role of fear of missing out (FOMO) in the relationship between loneliness and short-form video addiction among Chinese college students and examined the moderating effect of interpersonal contact efficacy. A total of 440 students aged between 18 and 25 years ( $M_{\rm age} = 21.300$ ,  $SD_{\rm age} = 1.588$ ) participated in an anonymous self-report survey. The findings revealed that: (1) loneliness was positively associated with short-form video addiction; (2) fear of missing out mediated the relationship between loneliness and short-form video addiction; (3) The relationship between loneliness and fear of missing out and the relationship between fear of missing out and short-form video addiction were regulated by interpersonal contact efficacy. Specifically, when interpersonal contact efficacy level was relatively high, loneliness had a stronger predictive effect on fear of missing out; when interpersonal contact efficacy was at a lower level, fear of missing out had a stronger predictive effect on short-form video addiction. These findings elucidate the mechanisms through which loneliness can lead to short-form video addiction and provide empirical support for targeted interventions in this area.

**Keywords:** Loneliness; fear of missing out; short-form video addiction; interpersonal contact efficacy.

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#### 1. INTRODUCTION

With the proliferation of mobile internet technologies, smartphones have become ubiquitous and indispensable in modern life. While these devices offer undeniable convenience, they also adversely affect physical and mental health (You et al., 2019). Traditionally, the concept of 'addiction' has been associated with chemical dependencies such as alcohol, cigarettes, and narcotics (Padwa & Cunningham, 2010). Bradley (1990) defines addiction as a dependence on a substance or object with narcotic properties, a definition originally confined to substance use. However, contemporary research indicates that seemingly benign habits and activities can also lead to addictive behaviors. Practices such as gaming, internet usage, and excessive eating have been found to cause problems analogous to those associated with alcohol, cocaine, and other psychoactive substances (Padwa & Cunningham, 2010).

Recent studies have identified that specific applications on smartphones can foster addictive behaviors. This includes addiction to internet fiction (Zhang et al., 2017), addiction to WeChat—a widely used mobile app in China (Zhao et al., 2021), and online shopping addiction (Zhang & Shi, 2022). With the rise of short-form video platforms in China, such as Xigua, Kuaishou, and TikTok, researchers have increasingly turned their attention to short-form video addiction as a distinct category of addictive behavior (Li et al., 2021; Yang et al., 2021; Ye et al., 2022). Short-form videos, typically lasting less than 15 minutes and often between 1 and 5 minutes, focus on concise topics (Ye et al., 2022). These applications are known for their user-friendly interfaces, engaging content, and quick browsing capabilities. They allow users to utilize brief moments for various purposes, including learning, relaxation, and social interaction, thus fulfilling social and entertainment needs (Pu et al., 2023; Huang et al., 2022). However, the highly immersive nature of these platforms, compounded by personalized video recommendations, can seduce users into excessive consumption, potentially leading to addictive behaviors (Rozgonjuk et al., 2021; Huang et al., 2022; Mou et al., 2021).

Although research on short-form video addiction is still emerging, findings indicate that excessive engagement with short-form videos can lead to significant physical and psychological issues. For example, Hu et al. (2021) observed a positive correlation between short-form video addiction and

sleep disturbances, which can severely impact individuals' physical health and academic performance. Additionally, Ye et al. (2022) found that this form of addiction negatively affects both intrinsic and extrinsic learning motivation. Chen et al. (2022) reported that individuals addicted to short-form videos often experience heightened difficulties in maintaining attention. Importantly, college students are particularly susceptible to addictive behaviors due to their developmental stage, which often includes challenges in self-regulation and discernment (Best et al., 2014). This demographic is at a higher risk for adverse effects related to social media use, including short-form video dependence, even addiction problems. In fact, Li et al. (2021) found that 21.6% of college students exhibited symptoms of short-form video addiction. Given these concerns, exploring the factors influencing and the mechanisms underlying short-form video addiction is crucial.

Existing studies have shown that loneliness increases fear of missing out (FoMO), which in turn predicts social media addiction (Barry & Wong, 2020; Blackwell et al., 2017). However, this pathway has not been tested in the context of short-form videos, where users are constantly bombarded with curated content, potentially intensifying anxiety about missed experiences. Additionally, while loneliness is a universal risk factor, its impact may vary by individuals' ability to address social needs. Interpersonal contact efficacy could act as a protective or amplifying factor. For example, high-efficacy individuals might alleviate loneliness through offline social engagement, weakening the link between loneliness and FoMO. Conversely, low-efficacy individuals may rely on short-form videos to compensate for real-world social deficits, strengthening the relationship between FoMO and short-form video addiction.

## 2. LITERATURE REVIEW

## 2.1 Short-Form video addiction

Building upon the broader concept of social media addiction, short-form video addiction can be defined as a maladaptive psychological dependency on short-form video platforms, exhibiting typical addiction symptoms (Yang et al., 2016). This addiction might represent a new subcategory of internet addiction, facilitated by the appealing, fragmented nature of video content and the satisfaction derived from user interaction (Zhang et al., 2019). Notably, excessive engagement with these platforms often preoccupies users' thoughts and behaviors (Turel et al., 2011).

Recent research has indicated that both familial and individual factors significantly contribute to the risk of developing short-form video addiction. For instance, family dynamics such as parental phubbing and neglect have been linked to higher rates of this addiction (Wang & Lei, 2022; Li et al., 2023). Concurrently, individual characteristics, such as personality traits, also play a crucial role. Specifically, higher neuroticism and lower levels of agreeableness and conscientiousness have been associated with increased vulnerability to short-form video addiction (Li et al., 2021). Additionally, the shift towards online social media has altered traditional interpersonal communication patterns, contributing to increased levels of loneliness in contemporary society (Uram & Skalski, 2022; Nowland et al., 2018). Previous studies have consistently shown that loneliness is a significant predictor of various forms of digital addiction, including video game addiction, smartphone addiction, internet addiction, and social media addiction (Tras et al., 2019; Kim, 2019; Turhan, 2021; Liu & Wang, 2012). Given these precedents, exploring whether and how loneliness may predict short-form video addiction is essential for understanding this emerging form of digital dependency and for developing effective interventions.

### 2.2 Loneliness and short-form video addiction

Loneliness has been defined as a discrepancy between actual and desired social relationships and interactions (Peplau & Perlman, 1982; Russell, 1996). It arises from a deficiency in social support and is recognized as an emotionally distressing experience (Holmes et al., 2020; Hansson et al., 1987; Rokach, 2002; Hawkley et al., 2003). Notably, Hansson et al. (1987) found a strong association between loneliness, anxiety, and depression. Furthermore, loneliness is commonly linked with negative emotional responses during social interactions (Abel et al., 2016).

While short-form video addiction is a relatively recent phenomenon, existing research on internet, smartphone, and social media addiction suggests that loneliness is a critical predictor of addictive behaviors (Primack et al., 2017; Skues et al., 2012; Dikeç et al., 2017). The 'social compensation' model supports this, proposing that individuals experiencing social anxiety and loneliness may turn to virtual environments or mobile phones as a coping mechanism (Guo et al., 2018). Kraut et al. (2002) and McKenna et al. (2002) suggest that lonely individuals benefit significantly from internet and smartphone usage. According to Nowland, NecKa, and Cacioppo (2018), lonely people are more inclined to use smartphones compared to their less lonely peers, potentially spending more time on short-form video applications to mitigate feelings of social isolation and expand their social networks (Zhang et al., 2019). This indicates that higher levels of loneliness

may increase the likelihood of developing an addiction to short-form videos. Based on this, the following hypothesis is proposed:

H1: The loneliness of college students positively affects the tendency of short-form video addiction.

Although short-form video addiction has received much attention and heated discussion, research in this area remains sparse. Therefore, this study not only examines the relationship between loneliness and short-form video addiction but also seeks to unravel the underlying psychological mechanisms, with the aim of informing strategies for the prevention and intervention of addictive behaviors.

### 2.3 The role of FoMO between loneliness and short-form video addiction

FoMO is defined as a pervasive unease arising from the apprehension that others might be having more rewarding experiences or accessing more valuable information (Vaughn, 2012). This phenomenon also encompasses anxiety about being disconnected from social interactions and missing out on novel experiences, positioning it within a subclass of anxiety disorders (Przybylski et al., 2013). Previous studies have demonstrated that individuals with high levels of FoMO are more inclined to frequently check social media (Riordan, 2015), succumb to checking and sending texts or emails while driving (Przybylski et al., 2013), and engage in social comparisons online (Fioravanti et al., 2021).

FoMO is influenced by core personal characteristics including personality traits, attachment styles, loneliness, depression, and a lack of social support (Wegmann et al., 2017; Blackwell et al., 2017). Recent research has linked higher levels of loneliness with increased FoMO, which in turn is a significant predictor of social media addiction (Barry & Wong, 2020; Blackwell et al., 2017; Elhai et al., 2016). For instance, Casale et al. (2018) found that FoMO is positively and directly associated with social media addiction. Further, studies by Cheng et al. (2022) and Pi & Li (2023) have suggested that FoMO mediates the relationship between loneliness and problematic mobile social media usage among college students. Given these connections, it is crucial to explore the potential influence of FoMO on short-form video addiction, leading to the following hypothesis:

H2: FoMO would mediate the relationship of loneliness and short-form video addiction.

## 2.4 The role of interpersonal contact efficacy

Loneliness may influence short-form video addiction through the mediating effect of FoMO, however, the impact of loneliness can vary among college students depending on their

interpersonal contact efficacy, which influences their coping strategies. Therefore, it is critical to explore potential moderators that might affect how loneliness influences short-form video addiction among college students. This study proposes a hypothesis that the indirect relationship between loneliness and short-form video addiction is moderated by interpersonal contact efficacy. Self-efficacy, as defined by Bandura (1997), refers to an individual's belief in their capability to achieve specific outcomes. Interpersonal contact efficacy, a specific application of self-efficacy, pertains to individuals' confidence in their ability to initiate and maintain social contacts and to elicit positive responses in various social settings (Xie & Zhang, 2009). It represents a process of subjective willingness and proactive judgment prior to engaging in communication activities. Interpersonal contact efficacy not only reflects an individual's assessment of their communication skills but also influences their approach to interpersonal challenges (Xie & Zhang, 2009). Studies have shown that students with high interpersonal contact efficacy are more confident in their social interactions and exhibit superior communication skills (Nie et al., 2013). Consequently, when these individuals experience loneliness, they are more likely to seek out and process information from others, and take active steps to forge stronger social connections. This suggests that interpersonal contact efficacy could modify how loneliness impacts FoMO. Accordingly, this study advances the following hypothesis:

H3: Interpersonal contact efficacy would moderate the relationships between loneliness and FoMO, that is, the higher the interpersonal contact efficacy, the stronger the relationship between loneliness and FoMO.

In addition, individuals with low interpersonal contact efficacy may reduce and avoid real-life social interactions, preferring to fulfill their communication needs in the virtual world. This tendency is influenced by their comfort with, and ability to engage in, direct social exchanges. For instance, Li and colleagues (2008) posited that individuals with low interpersonal contact efficacy are more likely to seek satisfaction in virtual spaces, and they typically exhibit higher levels of internet addiction. Given that short-form video addiction is a manifestation of internet addiction (Zhang et al., 2019), it is plausible that interpersonal contact efficacy could also influence the impact of FoMO on short-form video addiction. Accordingly, this study proposes the following hypothesis:

H4: Interpersonal contact efficacy would moderate the relationships between FoMO and short-form video addiction, that is, the lower the interpersonal contact efficacy, the stronger the relationship between FoMO and short-form video addiction.

In conclusion, this study centers on the influence of loneliness on short-form video addiction among college students and the psychological mechanisms underlying this relationship. We aim to validate two principal hypotheses: (a) whether FoMO serves as a mediator linking loneliness to short-form video addiction, and (b) whether interpersonal contact efficacy acts as a moderator that influences the relationships both between loneliness and FoMO, and between FoMO and short-form video addiction. These relationships are depicted in Figure 1.

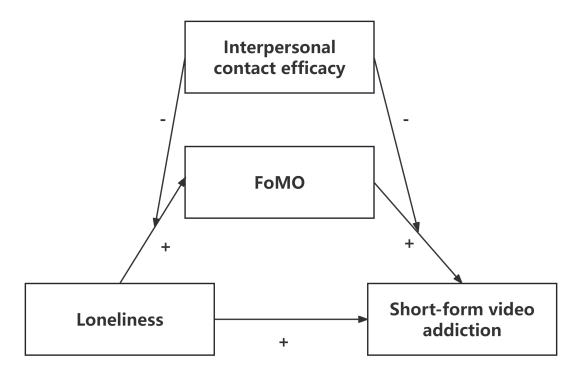


Figure 1. The proposed mediation and moderation model

# 3. METHOD

A convenience sample of 440 college students (292 woman, 148 man) aged 18–25 years (M = 21.300, SD = 1.588) was recruited via the online survey platform Wenjuanxing. Participants were invited through social media channels (e.g., WeChat, QQ) targeting Chinese university students. All responses were anonymized to ensure confidentiality.

This age range was selected because individuals aged 18-25 represent the primary user demographic of short-form video platforms (e.g., TikTok, Kuaishou) and are in a developmental

stage characterized by heightened social needs, emerging self-identity formation, and relatively underdeveloped self-regulatory abilities (Best et al., 2014; Li et al., 2021). These factors make them particularly susceptible to the psychological mechanisms underlying short-form video addiction, such as loneliness and FoMO.

*UCLA-LS*. The University of California at Los Angeles-Loneliness Scale was developed by Russell, Peplau and Cutrona (1980), which was used to evaluate an individual's subjective feelings of loneliness among college students. It uses a 4-point Likert-type scale and consist of 20 items. The total score can range from 20 to 80, and the internal consistency (Cronbach's alpha) coefficient was 0.885. Higher scores refer to higher levels of loneliness (The specific item can be found in the supplementary materials).

Fear of Missing Out Scale. The scale was developed by Przybylski and colleague (2013) and revised by Li and colleague (2019) in Chinese version, which consisted of 10 items measured on a 5-point scale ( $I = not \ at \ all \ true \ to \ 5 = extremely \ true$ ). Higher scores refer to higher levels of FoMO. The internal consistency (Cronbach's alpha) coefficient was 0.781.

Short-form video addiction Scale. The scale was measured by 14 items from Qin et al (2019). On a 5-point scale (I = not at all true to S = extremely true). Higher scores refer to higher levels of short-form video addiction. Additionally, participants were asked to answer 7 diagnostic items, where yes is scored 1 and no is scored 0. The score reaches 4 points or above, it can be assessed as having symptoms of short-form video addiction. The internal consistency (Cronbach's alpha) coefficient was 0.904.

Students Interpersonal Contact Efficacy Scale. The scale was measured by 36 items from Xie and Zhang (2009). Responses were measured on 6-point scale ranging from 1 (not at all true) to 6 (extremely true), including 24 forward scoring and 12 reverse scoring. Higher scores refer to higher levels of interpersonal contact efficacy among college students. The internal consistency (Cronbach's alpha) coefficient was 0.776.

The data obtained for the current research were analyzed through SPSS (26.0). Correlation coefficient analysis was used to find out Loneliness, FoMO, Interpersonal contact efficacy and Short-form video addiction are all related. The PROCESS macro for SPSS was used to conduct the mediation model and the moderated mediation model analysis. The mediation model analysis was performed to test the mediating role of FoMO. The moderated mediation model analysis was performed to test the moderating role of interpersonal contact efficacy.

#### 4. RESULTS

In this sample, 86.8% of the participates (n=382) watched short videos through video software, indicating that most individuals will watch short videos based on specialized short video software. In addition, the proportion of students in online push and other channel was 11.2% and 2.0%.

**Table1.** Demography description statistics of the study variables (N=440)

| Variable             | Category                       | N   | Percentage |
|----------------------|--------------------------------|-----|------------|
| Cov                  | male                           | 148 | 33.6%      |
| Sex                  | female                         | 292 | 66.4%      |
| 1.                   | freshman                       | 49  | 11.1%      |
| grade                | sophomore                      | 95  | 21.6%      |
|                      | junior                         | 77  | 17.5%      |
|                      | senior                         | 219 | 49.8%      |
|                      | Nature science                 | 140 | 31.8%      |
| major                | Humanities and Social sciences | 300 | 68.2%      |
|                      | yes                            | 191 | 43.4%      |
| student cadre or not | no                             | 249 | 56.6%      |
|                      | rural                          | 212 | 48.2%      |
| residence            | town                           | 228 | 51.8%      |
|                      | 18                             | 21  | 5.0%       |
|                      | 19                             | 41  | 9.3%       |
|                      | 20                             | 72  | 16.4%      |
| age                  | 21                             | 74  | 16.8%      |
|                      | 22                             | 144 | 32.7%      |
|                      | 23-25                          | 87  | 19.8%      |
| Cinala annat         | yes                            | 286 | 65%        |
| Single or not        | no                             | 154 | 35%        |
| 4hh                  | Video software                 | 382 | 86.8%      |
| the channel to watch | push                           | 49  | 11.2%      |
| short videos         | other                          | 9   | 2.0%       |

### 4.1 Test of common method bias

All data were collected through self-report questionnaires administered at the same time point. Considering the possibility of common method bias, we emphasized the confidentiality in the course of the investigation. Using Harman univariate factor analysis, we performed unrotated principal component analysis for all items of the four variables in this study. The variance of the first factor was 15.62%, which was lower than the judgement standard of 40% (Zhou & Long, 2004), indicating that there was no serious common method bias problem in this study.

# 4.2 Descriptive statistics and correlations of the study variables

Descriptive statistics and correlations among all study variables are reported in Table 2. As expected, college students with loneliness were more likely to get addicted to short-form video, which is also true for college students with higher levels of FoMO. Besides, college students with high loneliness were more likely to have higher levels of FoMO. In addition, college students with higher levels of interpersonal contact efficacy are less likely to get addicted to short-form video; they may have lower levels of loneliness and FoMO as well. Therefore, Hypothesis 1 was supported.

**Table 2.** Descriptive statistics and correlations of the study variables (N=440)

|                                  | M      | SD     | 1       | 2       | 3      | 4 |
|----------------------------------|--------|--------|---------|---------|--------|---|
| 1 short-form video addiction     | 41.730 | 12.320 | 1       |         |        |   |
| 2 loneliness                     | 42.900 | 9.250  | .274*** | 1       |        |   |
| 3 FoMO                           | 24.570 | 6.830  | .400*** | .374*** | 1      |   |
| 4 interpersonal contact efficacy | 145.06 | 14.770 | 107*    | 590***  | 210*** | 1 |

## 4.3 Tests of mediating role of FoMO

According to the existing research (Hayes, 2013), the bias-corrected bootstrap test was conducted to test indirect effects using SPSS's PROCESS macro, with a sampling number of 5000 and a confidence interval of 95%. All continuous variables were standardized, and age, student cadres and viewing channels were controlled. The results showed that loneliness had a significant influence on short-form video addiction and FoMO (B=0.337, t=3.656, p<0.001; B=0.249, t=8.622, p<0.001). Even when the mediating variable was included in the model, the significant effects of loneliness on short-form video addiction (B=0.175 t=3.019 p<0.01) still remained. More specific values are shown in Table 3.

Table 3. Coefficient estimates for the mediation model for short-form video addiction

| Predictor        | Short-form video addiction |       |           | FoMO      |       |              | Short-form video addiction |       |           |
|------------------|----------------------------|-------|-----------|-----------|-------|--------------|----------------------------|-------|-----------|
| rredictor        | В                          | SE    | t         | В         | SE    | t            | В                          | SE    | t         |
| Age              | 0.475                      | 0.313 | 1.518     | -0.061    | 0.160 | -0.384       | 0.515                      | 0.296 | 1.741     |
| Student cadres   | -1.219                     | 0.984 | -1.238    | -1.513    | 0.503 | -<br>3.011** | -0.237                     | 0.940 | -0.253    |
| Viewing channels | -4.363                     | 1.181 | -3.695*** | -0.719    | 0.603 | -1.193       | -3.897                     | 1.118 | -3.487*** |
| Loneliness       | 0.337                      | 0.057 | 3.656***  | 0.249     | 0.029 | 8.622**      | 0.175                      | 0.058 | 3.019**   |
| FoMO             |                            |       |           |           |       |              | 0.648                      | 0.089 | 7.308***  |
| $\mathbb{R}^2$   | 0.110                      |       |           | 0.160     |       |              | 0.208                      |       |           |
| F                | 13.496***                  | •     |           | 20.640*** |       |              | 22.779***                  |       |           |

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

In addition, the 95% CI for the indirect effect of loneliness on short-form video addiction via FoMO did not include zero (indirect effect =0.1688; 95%CI [.1080, .2328]), and the 95% CI for the direct effect of loneliness on short-form video addiction did not include zero (direct effect =0.1663; 95%CI [.0516, .2809]), causing the mediating effect to account for 50.7% of the total effect (total effect=0.3331; 95%CI [.2208, .4454]). More specific values are shown in Table 4. Therefore, Hypothesis 2 was supported.

Table 4. Results of mediating effect test

| :               | Effect size | BootSE | 95%CI  |        |  |
|-----------------|-------------|--------|--------|--------|--|
|                 | Effect Size | DOOLSE | LLCI   | ULCI   |  |
| Total effect    | 0.3331      | 0.0571 | 0.2208 | 0.4454 |  |
| direct effect   | 0.1663      | 0.0583 | 0.0516 | 0.2809 |  |
| indirect effect | 0.1688      | 0.0315 | 0.1080 | 0.2328 |  |

#### 4.4 Tests of moderated mediation model

To examine the moderated mediation hypothesis, the current study estimated parameters of the regression equations with SPSS macro program PROCESS (model 58). We centered the predictor and moderator variables, and age, student cadres and viewing channels were controlled. This study estimated the moderating effect of interpersonal contact efficacy on: the relation between loneliness and FoMO; the relation between FoMO and short-form video addiction. The specification of the data were summarized in Table 5. Moderated mediation was established if both of two patterns existed (Hayes, 2013): the path between loneliness and FoMO was moderated by

interpersonal contact efficacy, and the path between FoMO and short-form video addiction was also moderated by interpersonal contact efficacy.

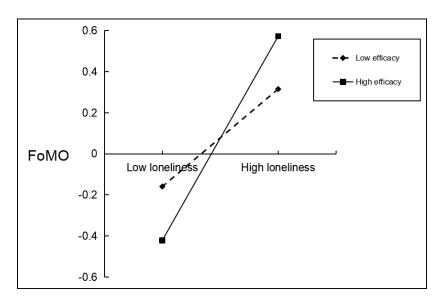
**Table 5.** Testing the moderated mediation effect

| Regression Models                                  | β         | SE      | t      | p       |  |
|--|-----------|---------|--------|---------|--|
| Mediator variable model for predicting FOMO        |           |         |        |         |  |
| Constant   | 0.899     | 0.635   | 1.415  | 0.158   |  |
| Age  | -0.012    | 0.028   | -0.410 | 0.682   |  |
| Student cadre                                      | -0.267**  | 0.092   | -2.920 | 0.004   |  |
| Viewing channels                                   | -0.137    | 0.106   | -1.289 | 0.199   |  |
| Interpersonal contact efficacy                     | -0.001    | 0.057   | -0.021 | 0.988   |  |
| Loneliness   | 0.367***  | 0.054   | 6.763  | < 0.001 |  |
| Loneliness* Interpersonal contact efficacy         | 0.130***  | 0.036   | 3.590  | < 0.001 |  |
| Dependent variable model for predicting short-     |           |         |        |         |  |
| form video addiction                               |           |         |        |         |  |
| Constant   | -0.753    | 0.621   | -1.212 | 0.226   |  |
| Age  | 0.055*    | 0.028   | 2.003  | 0.046   |  |
| Student cadre                                      | 0.002     | 0.091   | 0.023  | 0.982   |  |
| Viewing channels                                   | -0.388*** | 0.104   | -3.727 | < 0.001 |  |
| Interpersonal contact efficacy                     | 0.081     | 0.056   | 1.440  | 0.151   |  |
| Loneliness   | 0.200***  | 0.056   | 3.605  | < 0.001 |  |
| FoMO   | 0.357***  | 0.047   | 7.650  | < 0.001 |  |
| Loneliness* Interpersonal contact efficacy         | -0.088    | 0.056   | 1.440  | 0.151   |  |
| Conditional effects of loneliness at values of the | β         | Boot SE | LLCI   | ULCI    |  |
| moderator(Interpersonal contact efficacy)          | ,         |         |        |         |  |
| low  | 0.237***  | 0.067   | 0.110  | 0.364   |  |
| high   | 0.497***  | 0.066   | 0.368  | 0.626   |  |
| Conditional effects of FoMO at values of the       | β         | Boot SE | LLCI   | ULCI    |  |
| moderator(Interpersonal contact efficacy)          | •         |         |        |         |  |
| low  | 0.445***  | 0.065   | 0.318  | 0.572   |  |
| high   | 0.269***  | 0.057   | 0.158  | 0.380   |  |

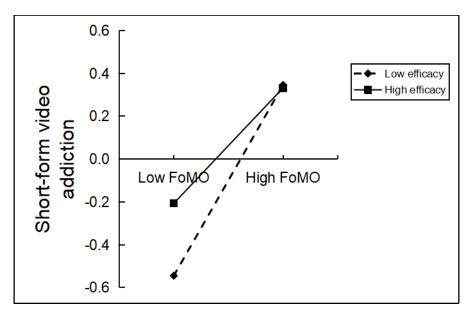
Note: Bootstrap sample size = 5000. LL = low limit, CI = confidence interval, UI = upper limit. p<0.05, p<0.01, p<0.001.

As shown in Table 4, after controlling the influence of demography factors, there was a significant main effect of loneliness on FoMO (B=0.367, t=6.763, p<0.001), and this effect was moderated by interpersonal contact efficacy (B=0.367, t=6.763, p<0.001), and there also was showed that the effect of FoMO on short-form video addiction was significant (B=0.357, t=7.650, p<0.001), the effect was moderated by interpersonal contact efficacy (B=-0.088, t=-2.257, t=0.05). Therefore, Hypothesis 3 was supported.

For descriptive purposes, this study plotted predicted FoMO against loneliness and short-form video addiction against FoMO, separately for low and high levels of interpersonal contact efficacy (1 SD below the mean and 1 SD above the mean respectively), as shown in Figures 2 and 3. Simple slope tests showed that the association between loneliness and FoMO was stronger for high interpersonal contact efficacy participants ( $b_{\text{simple}} = 0.497$ , P < 0.001) than for low interpersonal contact efficacy participants ( $b_{\text{simple}} = 0.237$ , P < 0.001), indicating that college students with high levels of interpersonal contact efficacy have a greater predictive effect of loneliness on FoMO. Similarly, Simple slope tests also showed that the association between FoMO and short-form video addiction was stronger for low interpersonal contact efficacy participants ( $b_{\text{simple}} = 0.445$ , P < 0.001) than for high interpersonal contact efficacy participants ( $b_{\text{simple}} = 0.269$ , P < 0.001), indicating that the lower interpersonal contact efficacy, the stronger the predictive effect of FoMO on short-form video addiction.



**Figure 2.** The interactive effect of loneliness and interpersonal contact efficacy on FoMO. High =1 SD above the mean; low=1 SD below the mean.



**Figure3.** The interactive effect of FoMO and interpersonal contact efficacy on Short-form video addiction. High =1 SD above the mean; low=1 SD below the mean.

### 5. DISCUSSION

Based on 'social compensation' model, this study investigated the relationship between loneliness and short-form video addiction, with a focus on the mediating role of FoMO and the moderating influence of interpersonal contact efficacy. The results showed that there was a positive correlation between loneliness and short-form video addiction; FoMO played a mediating role in the relationship between loneliness and short-form video addiction; interpersonal contact efficacy moderated the relationship between loneliness, FoMO and short-form video addiction. The findings contribute to the research field of short-form video behavior in the following ways.

Firstly, this study explores the relationship between loneliness and short-form video addiction. The findings indicate that loneliness positively influences short-form video addiction, thereby supporting Hypothesis 1. Loneliness, a pervasive negative emotion, manifests throughout various stages of an individual's life, particularly when communication needs are unmet. Previous research has consistently demonstrated a significant positive correlation between loneliness and mobile phone addiction (Zhang et al., 2020; Wang et al., 2023; Mahapatra, 2019). According to the Compensatory Internet Use Theory, individuals facing psychological and social challenges in real life are motivated to engage online as a means to mitigate negative emotions (Kardefelt-Winther, 2014). Furthermore, deficits in real-world social interactions and a lack of adequate social support complicate the ability of lonely individuals to fulfill their basic social needs. Consequently,

individuals with high levels of loneliness might turn to mobile phones to escape discomfort and satisfy their social requirements (Zhen et al., 2019). Additionally, as an emerging media form, short-form videos provide both entertainment and social functionalities (Mao & Jiang, 2023), allowing users to enhance their interpersonal communication and form new relationships. This facilitates the development of interpersonal attachments to short-form video applications (Zhang et al., 2019). Therefore, it is plausible that individuals experiencing high levels of loneliness are more susceptible to short-form video addiction.

Secondly, the results confirm that FoMO mediates the relationship between loneliness and short-form video addiction, supporting Hypothesis 2. Prior research has established that loneliness influences individuals' mobile phone use both directly and indirectly. Specifically, loneliness impacts mobile social media usage through the pathway of FoMO (Cheng, 2021; Mahapatra, 2019; Pi & Li, 2023). Drawing on Self-Determination Theory (Deci & Ryan, 1985), which identifies relatedness needs as fundamental psychological requirements, it is evident that individuals with pronounced loneliness often struggle to fulfill these needs. As a result, they experience discomfort and may become overly attentive to others' activities as a means to mitigate negative feelings, thereby increasing their susceptibility to FoMO (Chai et al., 2018; Wu et al., 2018). Moreover, the convenience and immediacy of mobile social media not only cater to people's need for relatedness but also facilitate problematic usage patterns (Nadkarni & Hofmann, 2012). Thus, these findings enhance our understanding of the mechanisms through which loneliness can promote short-form video addiction.

Finally, the results reveal that interpersonal contact efficacy moderates the path between loneliness and FoMO (first-stage moderation) and moderates the relationship between FoMO and short-form video addiction (second-stage moderation), supporting H3 and H4. Namely, compared with low level of interpersonal contact efficacy, individuals with high level of interpersonal contact efficacy have a stronger positive predictive effect of loneliness and FoMO. Previous research has found that individuals with high level of loneliness lack extensive social support and social interactions in real life, but they are also eager to stay connected to the society (Heng et al., 2023). Therefore, they are more likely to browse social network frequently and know others status impatiently (Chai et al., 2018), and then produce FoMO. However, individuals who experience low level of interpersonal contact efficacy may have lower expectation of their communication situation, and even if they do not receive sufficient social support in real life, they are less inclined to meet their

communication needs through the internet. The results enrich our understanding of the interpersonal contact efficacy between loneliness and FoMO.

The present study also find that interpersonal contact efficacy moderates the relationship between FoMO and short-form video addiction. That is, compared with high level of interpersonal contact efficacy, individuals with low level of interpersonal contact efficacy have a stronger positive predictive effect of FoMO on short-form video addiction. The perspective of social compensation hypothesis (SCH) can provide an explanation for this result, individuals with low social competence will use virtual socialization to compensate for deficits they encounter in the interpersonal relationship (Poley & Luo, 2012). When the interpersonal contact efficacy is low, the frustration of reality will motivate them to meet their communication needs through the virtual world. Additionally, when their FoMO is high, they are more inclined to obtain information from others through the internet. Present research has shown that short-form video addiction may have a unique advantage in meeting needs for interpersonal competence, thus increasing the likelihood of short-form video addiction (Wang et al., 2023). In addition, Zhao et al (2016) have confirmed that individuals with high level of interpersonal contact efficacy will have more positive attitudes and greater confidence towards their own performance in interpersonal communication, therefore, even if their FoMO is high, they may still obtain information about other's in real life and reduce the frequency of watching short-form video. Meanwhile, Iskender and Akin (2010) also found that people with high self-efficacy were more likely to decrease their internet addiction. Thus, compared with high interpersonal contact efficacy, FoMO is more inclined to induce short-form video addiction with low interpersonal efficacy. This suggests that interpersonal contact efficacy can be a protective factor for people 's short-form video addiction when there are adverse factors in the anxiety state.

The findings of this study have important implications. Firstly, the study underscores the critical role of loneliness in the onset of short-form video addiction. Given the detrimental effects of this addiction on aspects such as depression, distraction, sleep quality, and social isolation (Hong et al., 2014; Ponnusamy et al., 2020; Seo & Ray, 2019; Mu et al., 2022), it is imperative for educational institutions to focus on easing the transition from high school to university. By aiding students in adapting to university life and promoting richer interpersonal communication, schools can play a pivotal role in mitigating loneliness and consequently reducing susceptibility to short-form video addiction. Second, our findings can help practitioners understand how loneliness is

linked to college students short-form video addiction, it can provide insights for potential interventions. For example, interventions targeting at reducing FoMO can alleviate college student short-form video addiction. Therefore, it is necessary to guide college students to deal with FoMO correctly and use social media reasonably. Thirdly, our findings highlight the significant influence of interpersonal contact efficacy on short-form video addiction. Recognizing that individuals with lower interpersonal contact efficacy are more prone to addiction underscores the need for preventive measures and interventions specifically tailored for this group. Enhancing interpersonal contact efficacy, particularly among students experiencing high levels of FoMO, could significantly mitigate the physical and psychological impacts associated with short-form video addiction.

The findings of this study should be interpreted within the context of several limitations. Firstly, due to the cross-sectional design of this research, causal relationships between the variables cannot be definitively established. Future research should employ longitudinal or experimental designs to better ascertain causality among the studied factors. Secondly, the reliance on self-reported data from college students could introduce bias and limit the reliability of the findings. It would be beneficial for subsequent studies to incorporate multiple informants, such as teachers, peers, or parents, to corroborate and expand upon these results. Thirdly, this research was conducted exclusively with a non-clinical sample of college students, which restricts the generalizability of the results to broader or clinical populations. Future investigations should consider including clinical samples to determine the applicability of the findings across different groups and to further validate the study's outcomes.

## 6. CONCLUSION

In summary, the present study indicates that loneliness can be a risk factor for short-form video addiction. Further, the mediation analysis reveals that FoMO can be one possible mechanism underlying this relation. Besides, moderated mediation analysis reveals that interpersonal contact efficacy buffers the relation between loneliness and FoMO and FoMO and short-form video addiction, with the effect between loneliness and FoMO being stronger for college students with a high level of interpersonal contact efficacy; Similarly, the present study argues that at lower levels of interpersonal contact efficacy, FoMO has a stronger promotion effect on short-form video addiction.

# 6.1 Theoretical implication

This study makes important theoretical contributions by advancing our understanding of the psychological mechanisms underlying short-form video addiction. First, it extends the social compensation model by demonstrating how loneliness drives short-form video use through the mediating role of FoMO, revealing this as a distinct pathway separate from general social media addiction. Second, the research enriches self-efficacy theory by identifying interpersonal contact efficacy as a crucial moderator, showing its influence - amplifying the loneliness-FoMO relationship while buffering FoMO's impact on addiction. These findings provide a more subtle theoretical framework for understanding the psychological mechanisms of short-form video addiction.

## 6.2 Managerial implication

The findings offer valuable insights for developing targeted interventions. For mental health practitioners, the results suggest that treating short-form video addiction should address both the root cause (loneliness) and the mediating mechanism (FoMO), with intervention strategies tailored to individuals' interpersonal efficacy levels. Educational institutions can use these insights to design prevention programs that enhance students' real-world social skills and resilience against FoMO. Importantly, the differential moderation effects indicate that intervention strategies should be tailored, high-efficacy students may benefit more from mindfulness training to regulate social vigilance, while low-efficacy students may require structured social integration activities to decrease compensatory video use. These evidence-based applications demonstrate how psychological research can inform concrete solutions to emerging digital health challenges.

### 6.3 Limitations and Future Directions

The findings should be considered in light of the following limitations. First, since we use a convenience sample, all participants were recruited from the same school, so the composition of the subjects was not balanced enough, the representativeness of the sample is limited. Second, we cannot make any causal inferences about the associations due to the cross-sectional nature of the study design, so it is important to use other study design(e.g., longitudinal design or experimental studies) to further confirm the causal relationship of the variables. Third, the self-report method limits the validity of the data because of social expectations and other biases, future research should use data from different samples(e.g., peer, parent and teacher) to provide more reliable evidence from different informants.

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