The Influence of Neurotic Personality Traits on Excessive Short Video Usage

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Abstract
This study focuses on the influence of neuroticism on the tendency to consume a high amount of short videos, revealing the internal flow as well as paths that lead to it. The study used a cohort of 513 undergraduates and employed tools such as the Chinese Big Five Personality Inventory (in the brief form), the Short Video Addiction Scale, the Flow Experience Scale, and the Brief Self-Control Scale. Findings from this research underscore that:
- The loading of neuroticism on the overuse of short videos are significantly positive;
- The effect of neuroticism on the overindulgence of short video content acts through two routes: First, an indirect path of self-control and flow, and second, a serial mediation path between self-control and flow. The comprehensive analysis explores excessive consumption of short video content that gives birth to the guidance on strategies of prevention and correction that will be aimed at college students. This thoughtful analysis adds value to the discussion related to digital behaviors and their psychological roots.

Keywords: neurotic personality traits, excessive short video usage, self-control, flow

1. Introduction

Short video platforms have emerged as a dominant force in internet content distribution, witnessing exponential growth due to their bite-sized, interactive format. According to the “China Internet Audio-visual Development Research Report (2023)” the overall valuation of the Chinese internet audio-visual sector presented over 700 billion yuan in 2022, of which 40.3% are short videos. In December 2022, the user base for short video content reached 1.012 billion people or 94.8% of all internet users. The Mean time of consumption per user has crossed the 2.5-hour mark. Additional discoveries from Quest Mobile’s “2022 China Mobile Internet Annual Report” reveal that short videos took the biggest slice of digital engagement; 28.5% of the internet time, which is an increase of 13.3% compared to 2019. In China, TikTok alone has drawn in more than 26 million students, making up almost 80% of this group, across the nation (TikTok, 2021). According to CSM, predictions are that the 10-29 age group will be more likely to spend both, more time and money, on short videos and it will result in overconsumption. Many studies have confirmed the deleterious effects of such overuse (Chen et al., 2022; Mu et al., 2022; Qin et al., 2022; Zhang et al., 2019).

The existing studies about short videos overutilization usually cover mainly theoretical aspects (Dong et al., 2023; Tian et al., 2023; Yang et al., 2019; Zeng, 2019), leaving a few of them that put emphasis on the mechanisms behind the addiction. Besides, such research tends to include it in the context of the internet addiction in general, thus ignoring the distinct features of short video consumption. Specifically, the diversity of internet functionalities increase as it is crucial for future studies to pay attention to the type of patterns or content associated with internet addiction (Leung & Chen, 2018). Owing to high engagement of university students with internet apps and their susceptibility to addiction as proved by Liu et al. (2021), this study aims at understanding psychological foundations of students’ short video addiction. It, also, uses self-control and flow as mediators to study the role of neuroticism in short video consumption among the students. This study seeks to provide a model for the assessment and control of university students’ internet addiction, thereby satisfying both academic and social requirements.

Thus, this study contributes to the inquiry on how neurotic traits may trigger the excessive watching of short videos, emphasizing the minute differences in attitudes towards short video consumption between different
individuals. It also creates a baseline for developing specific interventions and prevention strategies. At first, though it is challenging to change neuroticism, a trait of a personality, educational institutions can focus on students who demonstrate high neuroticism. Providing customized psychological support and teaching coping skills is a way to help such students master their anxiety and emotional fluctuations, thus reducing their tendency to overconsume short videos. In addition, self-control and flow as possible determinants of short video consumption should be further investigated. Higher education institutions should nurture and teach how to develop discipline necessary to prevent an overuse of short videos. Such initiative could include providing students with optimal time management skills as well as motivating healthy entertainment. Additionally, college students, who benefit from heightened levels of freedom and independence, should foster self-regulation. The self-control may be achieved by adopting some strategies including short videos viewing time restrictions and time management plans among others which avoid the excess indulgence in short videos.

1.1 Neurotic Personality Traits and Excessive Short Video Usage

Personality, covering a number of psychological traits that present themselves within social interactions, has an important impact on people's attitudes related to internet use. Previous research has highlighted the relationship between some personality dimensions and internet addiction (Gou et al., 2021; Kayiş et al., 2016; Zhou et al., 2017). Particularly, the association of neuroticism with vulnerability to internet addiction has been thoroughly researched, showing a relatively constant, positive relationship. High level of neuroticism is associated with higher probability of social networks addiction (Kuss et al., 2013; Wang et al., 2015), and Zhang et al. (2017) have found a significant correlation of neuroticism that is often related to adverse emotional states with smartphone addiction. In addition, neuroticism has also been identified as a predictive factor of problematic short video consumption (Mao & Jiang, 2023) thus, making it a critical risk factor for short videos addiction (Li et al., 2021). Consequently, this leads to the formulation of Hypothesis 1: A significant positive predictor of excessive short video consumption is neurotic personality traits.

1.2 Single Mediating Effects of Self-Control and Flow

Self-control is individual’s capability to control themselves by setting up personal standards and norms relative to context and intentions, and judge their behavior according to these standards. This stage involves decisions making regarding starting or stopping actions upon these criteria, deciding on cessation of or continuation of a certain behavior (Yu, 2005). The self-control strength of an individual is highly etc. under the effect of their personality traits (Yu et al., 2013). Research suggests a strong link between the self-control capacity of a person and their Big Five personality traits (Deng & Gong, 2015). All in all, less neurotic individual will have fewer problems with self-control. (Chen & Zheng, 2019). In addition, self-control is a powerful determinant of problem behaviors (Situ, 2017), with low self-control individuals more likely to engage in a variety of negative behaviors. In terms of self-control, internet addiction is also associated as one particular type of problem behavior (Pang et al., 2010; Song & Park, 2019; Wei, 2023). Consequently, this leads to the formulation of Hypothesis 2: Self-control mediates between neurotic personality traits and excessive viewing of short videos.

Flow, which is also known as a state of immersion, was introduced by the positive psychologist Csikszentmihalyi to define a state in which people are engaged in an activity so deeply that they lose sense of time (Csikszentmihalyi, 2000). The concept of flow is categorized into three phases: precursors of flow, the flow state itself and flow experience consequences (Jiang et al., 2021). This study focuses solely on the flow phase of flow experience, particularly in evaluating differences in flow during short video consumption. The authors argued that personality characteristics might determine the depth of the flow someone would experience. A research by Liu and Deng (2017) found a significant inverse relationship between traits like extraversion, conscientiousness, and flow experience. Individuals with high neuroticism are more likely to experience flow in negative contexts (Wang, 2022) hence they are more likely to be immersed in activities online leading to internet addiction (Zhang et al., 2017). Results of previous studies have confirmed that flow experience is positively related to social networks addiction (Chou & Ting, 2003; He et al., 2008; Ye et al., 2022). Therefore, Hypothesis 3 is formulated: Flow mediates the relationship between the neurotic personality traits and excessive short video consumption.

1.3 Chain-Mediating Effects of Self-Control and Flow

The existing research on the relationship between self-control and flow is rather limited. Despite this, some evidences show that individuals with autonomy deficits are more prone to experiencing flow states (Teng, 2011). The results put forth by Gong and Liang (2019) indicate that people with reduced self-control tend to get engaged in deeper involvement, which makes them prone to problematic internet behaviors. Inasmuch as the studies that scrutinize this aspect are a few, the existing evidence instigates an inquiry into the combined
mediation of self-control and flow in the context of the relation between neurotic personality traits and the excessive use of short videos. Thus, Hypothesis 4 is introduced: Self-regulation and flow consecutively indirectly affect the relationship between neurotic personality traits and excessive short video consumption.

2. Methods

2.1 Participants

This inquiry employed convenience sampling for recruiting its sample participants who were Chinese undergraduate and graduate students from universities located in Guangdong province. The data collection process was carried out using a web survey which was distributed through Questionnaire Star. After the elimination of responses that violated the survey filters, 513 questionnaires were considered valid responses for analysis, representing a response rate of 99%. The demography of the participants was as follows: males–223 (43.5%), females–290 (56.5%), undergraduates–490 (95.5%), and graduates–23 (4.5%).

2.2 Instruments

The CBF-PI-B comes from the full CBF-PI (Wang et al., 2011) and consists of five domains with 40 items in total. The current study used the Neuroticism Subscale from the CBF-PI-B which consists of 8 items rated on a 5-point Likert scale (1="completely disagree" to 5="complete agree"); with higher scores indicating greater emotional instability. The reliability of the Neuroticism Subscale was proved by the Cronbach’s alpha of 0.952.

The Short Video Addiction Scale, derived from the Mobile Phone Addiction Inventory (MPAI) (Qin et al., 2019), assesses addiction through four facets: Escapism, withdrawal, lack of power, and unproductive. Ratings were performed on the five-point scale ranging from “completely disagree” to “completely agree” where a higher score regarded a stronger tendency of addiction. Diagnosis of an inclination towards too much of short video viewing was made on the affirmation of four or more score out of seven diagnostic items. The internal consistency reliability of the whole scale was found to be Cronbach’s alpha=0.896, and the individual dimension reliabilities were escapism=0.865, withdrawal=0.916, loss of control=0.889, and inefficiency=0.821.

Adapting from Trevino's Internet Immersion Model, the Flow Experience Scale (Qin, 2022) measures four dimensions: concentration, sense of control, curiosity and intrinsic interest, on a five-point scale from 1="strongly disagree" to 5="strongly agree" Higher scores give a deeper flow experience, the Cronbach’s alpha reliability of this scale is 0.891.

The Brief Self-Control Scale (BSCS), a translation and adaptation of the original scale (Luo et al., 2021), consists of seven items representing self-discipline and impulse control dimensions. Respondent comments were recorded on five point Likert scale ranging from strongly disagree to strongly agree with higher scores reflecting more self-control. The BSCS was a reliable measure, having a Cronbach’s alpha of 0.957.

3. Results

3.1 Common Method Bias

The investigation applied Harman's single-factor test for assessing the presence of common method bias, as recommended by Zhou & Long (2004). Analysis without factor rotation revealed that seven eigenvalues were greater than 1, with the primary factor accounting for 33.776% of the total variance, falling short of the 40% threshold. This outcome suggests that common method bias was not a predominant issue affecting the research findings.

3.2 Descriptive Statistics and Correlation Analysis

Table 1 displays that there is a notable positive association between the propensity for excessive short video consumption and neurotic personality characteristics (r=0.32, p<0.01), with neuroticism significantly correlating with all facets of short video addiction: withdrawal, escapism, loss of control, and inefficiency. Furthermore, the flow experience shares a positive relationship with both the inclination towards excessive short video usage and neurotic personality traits (r=0.44, p<0.01; r=0.314, p<0.01), respectively. Conversely, self-control is inversely related to both excessive short video consumption and neurotic personality traits (r=−0.39, p<0.01; r=−0.34, p<0.01). There is also a significant negative association between the flow experience and self-control (r=−0.54, p<0.01).
Table 1. Means, Standard Deviations, and Correlation Coefficients of Variables

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excessive Short Video Usage</td>
<td>3.39</td>
<td>0.79</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Neuroticism</td>
<td>3.35</td>
<td>1.01</td>
<td>0.32**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Flow Experience</td>
<td>3.10</td>
<td>0.86</td>
<td>0.44**</td>
<td>0.314**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Self-Control</td>
<td>3.15</td>
<td>0.95</td>
<td>-0.39**</td>
<td>-0.34**</td>
<td>-0.54**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Withdrawal</td>
<td>3.42</td>
<td>1.03</td>
<td>0.80**</td>
<td>0.17**</td>
<td>0.35**</td>
<td>-0.27**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Escapism</td>
<td>3.37</td>
<td>1.10</td>
<td>0.73**</td>
<td>0.31**</td>
<td>0.29**</td>
<td>-0.27**</td>
<td>0.39**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Loss of Control</td>
<td>3.40</td>
<td>1.03</td>
<td>0.75**</td>
<td>0.25**</td>
<td>0.35**</td>
<td>-0.31**</td>
<td>0.38**</td>
<td>0.42**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. Inefficiency</td>
<td>3.36</td>
<td>1.19</td>
<td>0.64**</td>
<td>0.25**</td>
<td>0.27**</td>
<td>-0.30**</td>
<td>0.35**</td>
<td>0.43**</td>
<td>0.37**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. *p<0.05, **p<0.01, ***p<0.001, the same below.

Table 2. Chained Mediation Effects between Neuroticism and Excessive Short Video Usage

<table>
<thead>
<tr>
<th>Items</th>
<th>Self-Control</th>
<th>Flow Experience</th>
<th>Excessive Short Video Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
<td>β</td>
</tr>
<tr>
<td>Only Child</td>
<td>-0.03</td>
<td>-0.74</td>
<td>-0.02</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.02</td>
<td>-0.58</td>
<td>-0.00</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-0.34</td>
<td>-8.07***</td>
<td>0.15</td>
</tr>
<tr>
<td>Self-Control</td>
<td>-0.49</td>
<td>-12.53***</td>
<td>-0.17</td>
</tr>
<tr>
<td>Flow Experience</td>
<td>0.29</td>
<td>6.22***</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>0.34</td>
<td>0.55</td>
<td>0.50</td>
</tr>
<tr>
<td>R²</td>
<td>0.11</td>
<td>0.31</td>
<td>0.24</td>
</tr>
<tr>
<td>F</td>
<td>22.07***</td>
<td>57.44***</td>
<td>32.85***</td>
</tr>
</tbody>
</table>

3.3 Mediation Analysis

Mediation analysis utilized the SPSS macro process by Hayes to explore the data. Initial analyses included independent sample t-tests for variables such as gender and whether the participant was an only child. Findings revealed significant differences in neuroticism scores based on gender and in self-control scores depending on only-child status. Hence, these factors were incorporated as control variables in further analyses. According to the data presented in Table 2, neuroticism was found to have a significant positive effect on both excessive short video consumption and flow experience (t=4.00, p<0.001; t=3.79, p<0.001), and a significant negative effect on self-control (t=-8.07, p<0.001). Moreover, self-control was significantly negatively associated with both flow experience and excessive short video consumption (t=-12.53, p<0.001; t=-3.69, p<0.001), while flow experience significantly positively influenced excessive short video consumption (t=6.22, p<0.001).

Subsequent analysis employed the bias-corrected non-parametric percentile Bootstrap technique for evaluating the significance and confidence intervals of the sequential mediation effects, utilizing a sample size of 5000. Table 3's findings demonstrate that the 95% confidence intervals for all mediated pathways do not include zero, confirming the significance of the mediation effects. Specifically, self-control and flow experience act as partial mediators in the link between neuroticism and excessive short video consumption, accounting for 39.20% and 22.80% of the total effect, respectively. Moreover, a sequential mediation effect involving self-control and flow experience was observed, contributing 32.10% to the overall effect.
Table 3. Mediation Effects and Confidence Intervals

<table>
<thead>
<tr>
<th>Mediation Path</th>
<th>Effect Value</th>
<th>Proportion</th>
<th>95% Confidence Interval</th>
<th>95% CI Lower</th>
<th>95% CI Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism→Self-Control→Excessive Short Video Usage</td>
<td>0.05</td>
<td>39.20%</td>
<td>0.0178</td>
<td>0.0724</td>
<td></td>
</tr>
<tr>
<td>Neuroticism→Flow Experience→Excessive Short Video Usage</td>
<td>0.03</td>
<td>22.80%</td>
<td>0.0155</td>
<td>0.0540</td>
<td></td>
</tr>
<tr>
<td>Neuroticism→Self-Control→Flow Experience→Excessive Short Video Usage</td>
<td>0.04</td>
<td>32.10%</td>
<td>0.0207</td>
<td>0.0610</td>
<td></td>
</tr>
</tbody>
</table>

4. Discussion

4.1 Neurotic Personality and Excessive Use of Short Videos

The findings demonstrate a significant correlation between neurotic personality traits and the heightened consumption of short videos, aligning with prior studies (Chung, 2022) and affirming Hypothesis 1. Neuroticism is frequently linked to adverse emotions, including depression and heightened sensitivity. Individuals exhibiting these characteristics often resort to negative coping strategies to manage such emotions (Carver & Connor-Smith, 2010). Short videos for some are an instant balm that allows them to forget what they did not like in their life. In addition, an impulsivity that is often associated with neuroticism (Zhang et al., 2019) prevents such people from resisting the appeal of short video clips, triggering repetitive and uncontrolled viewing. Such desire to achieve instant gratification can even turn into an addiction, with individuals observing other symptoms of the withdrawal syndrome, such as low mood and restlessness, upon quitting the short video platform. As a result, viewers are faced with the pressure to increase their viewing frequency which eventually leads to an overconsumption of the short videos.

4.2 Mediating Role of Self-Control and Flow

The study provided evidence that self-control acts as a partial mediator in the relationship between neurotic personality tendencies and the excessive use of short video clips, thus, supporting Hypothesis 2. Gugushvili et al. (2022) noted that neuroticism was associated with low self-control consistent with previous studies while Zhang et al. (2023) found that there is a significantly negative relationship between self-control and excessive use of short videos. The limited strength theory suggests that self-control is essentially limited; thus, negative emotions can deplete the levels of self-control (Muraven & Baumeister, 2000). Such depletion makes a person more vulnerable, susceptible to temptations or challenges, diminishing one’s ability to control and cope with actions properly. Neuroticism comes together with the increased activity in areas of the brain responsible for fear learning making neurotic people have rather pessimistic future uncertainty expectations and hence experience frequent negative emotions (Servaas et al., 2013) resulting in lower self-control levels. The ability of individuals to execute self-control functions is also diminished (De Ridder et al., 2012), while their capacity to implement executive control functions is similarly depreciated, rendering that they are often unable to take part in typical cognitive procedures during decision-making (Chen et al., 2023). This compromised state often triggers impulsive actions, driving individuals towards choices that offer immediate satisfaction, such as excessive short video viewing.

The investigation also established that flow functions as a partial mediator in the link between neurotic personality traits and the excessive consumption of short videos, aligning with earlier studies (Qin, 2020) and supporting Hypothesis 3. Individuals with neuroticism are more susceptible to emotional instability and tend to have stronger and more intense emotional responses (Zhang et al., 2017). Such emotional states foster engagement, leading to enhanced focus and the facilitation of immersive experiences. According to incentive sensitization theory, individuals are drawn to positive experiences through the perception of specific stimuli. With repeated exposure, there is an escalation in the pursuit of these intense positive experiences, heightening cravings for the stimuli. Flow, regarded as a peak experience, is particularly sought after by college students (Wei et al., 2012). As a result, the continuous pursuit of immersive experiences through short video viewing can lead to their excessive use.

Further, the study detected that self-control and flow act as consecutive mediators between the neurotic personality trait and the excessive use of short videos, supporting Hypothesis 4. This result corresponds to the previously made assumption that people with low self-control are more likely to have immersive experiences (Khang et al., 2013). The theory of temporal self-regulation states that people compare current costs to future
benefits when making their choices (Hall & Fong, 2007). The fact that a long-term overuse of short videos can have negative effects on both physical and mental aspects is agreed upon. As such, reducing short video viewing is considered beneficial for promoting a healthier lifestyle and improving offline social interactions. However, those whose self-control is weak, easily are attracted to immediate stimuli (Milyavskaya & Inzlicht, 2017) and therefore tend to be drawn towards the pleasure and entertainment the videos provide. The consider value of limiting short video use was not worth the effort, hence, spoiling temporal efficacy. Thus, such people may be more immersed in the short video environment that may lead to their increased flow (Esteban-Millat et al., 2014).

5. Conclusion

5.1 Research Conclusions

(1) There is a strong positive link between neurotic personality traits and the overindulgence in short video consumption.

(2) The tendency towards excessive consumption of short videos by individuals with neurotic personality traits can be attributed to the mediating effects of self-control and flow when considered separately.

(3) The pathway through which neurotic personality traits lead to excessive consumption of short videos includes a sequential mediation involving both self-control and flow.

5.2 Research Outlook and Limitations

This research has certain limitations. Primarily, being a cross-sectional study with data gathered at a single time point, it cannot establish causality. Future research could employ experimental designs, longitudinal studies, and other methodologies to delve deeper into these variable relationships. Secondly, the study predominantly involved undergraduate students, with a relatively small sample of graduate students, limiting the breadth of its findings. Additionally, potential influences such as educational background, demographic variations, and cultural differences between Eastern and Western contexts were not explored. Future investigations could broaden their scope to include diverse groups, enhancing the study's external validity and representativeness.

5.3 Research Innovations

This study delves into the domain of short videos, introducing self-control as a novel variable and illuminating the internal mechanisms by which high neuroticism fosters excessive short video usage. It further explores the interplay between self-control and flow, applying the theory of temporal self-regulation to elucidate their effects.

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