

Research on the influencing factors of excessive behavior of Bilibili video platform

*Dong Lv, Qiang Wei**, Jiao Li, and Rui Wang

Jiangnan University, 430056Wuhan, China

Abstract. Bilibili is a cultural community and video platform for China's younger generation that is highly aggregated. Currently, the excessive use of Bilibili is becoming increasingly serious. Based on social cognition theory and uses and satisfactions theory, this study adopts questionnaire survey to explore the influencing factors of Bilibili users' overuse behavior. Correlation analysis and binary logistic regression analysis were conducted on 305 valid questionnaires collected through the online platform to verify the research hypotheses. The results show that entertainment motivation, learning motivation, social need, stress relief, sense of belonging, and peer influence, have significant positive effects on Bilibili users' overuse behavior. Finally, this study proposes three recommendations to guide people to use Bilibili platform more scientifically and appropriately, including the platform should take the responsibility of necessary warning and constraints, guiding users to correctly understand excessive behavior and strengthen personal media literacy.

1 Introduction

According to the "China Internet Development Statistics Statistical Report", the number of network video users in China reached 927 million by 2020, making related Network video become the most popular online entertainment application. Bilibili already has more than 200 million monthly active users. On the evening of July 13, 2021, both Bilibili's webpage and APP were inaccessible, and within a few minutes, "Bilibili collapsed" became a hot search item on all major platforms, which shows a large number of active users and the great influence of it. Users appear to watch videos for too long, overindulge and other irrational behavior gradually. In recent years, video addiction-related topics have attracted academic attention. The research topics focus on the motivational needs, personality traits, lifestyle, and other aspects of excessive use, and objects are mainly from Tik Tok, Kwai, and other short video platforms. However, no research has been conducted on the influencing factors of overuse by taking Bilibili video platform as an example. Therefore, this paper based on uses and satisfactions theory and social cognitive theory, develop a questionnaire to collect data, supplement existing theories, and propose corresponding interventions. Social media is a platform to establish social networks or social relationships, such as Bilibili video platform. With the exponential growth of social media overuse, most

* Corresponding author: weiqiang@jhun.edu.cn

studies in recent years have focused on the negative effects of overuse behaviors, such as continued use beyond the normal usage time, leading to threats to mental and physical health, reduced self-control, and even becoming a compulsive or addictive use behavior[1]. Overuse is manifested as an addiction to technology, including excessive interaction with IT under psychological dependence. Thus, excessive use is defined as a psychological state of non-adaptive dependence on its use and the development of behavioral addiction symptoms [2].

At present, the research on the excessive use of short videos mainly concentrated on motivation. The research finds that the entertainment motive is Paramount, and the need to obtain information and socialize also matters[2 - 4].In addition, entertainment and leisure, killing time, and searching for information are the motivation of Internet video users[5]. The social and technical characteristics of short video applications also have a positive impact on user attachment[2]. It has also been found that individuals with stronger stress susceptibility are more likely to have excessive screen use behavior[6]. With the rapid development of Bilibili, many users have shown excessive use behavior, which affects their normal work and life, but this section has not received too much attention from academics.Jane et al. proposed the uses and satisfactions theory, which is often used in social media addiction studies[7, 8], thinking that the satisfaction of the demand of using media will lead to the continuous use of media[9]. The reason could be a positive reinforcement in mental processes such as enjoyment, entertainment, or a sense of belonging[10]. Addiction can also occur when users rely on social media to fill a psychological void in an individual's lonely life [11]. Bilibili satisfies users' personalized motivation needs, and the satisfaction generated in this process leads to the occurrence of overuse behavior, so the uses and satisfactions theory is selected as the theoretical basis. Entertainment motivation, social needs, learning motivation, and stress relief were included in the influencing factors of overuse behavior. Based on the above understanding, the following research hypotheses are proposed:H1: Entertainment motivation has a positive impact on Bilibili users' overuse behavior.H2: Social needs have a positive impact on Bilibili users' overuse behavior.H3: Learning motivation positively affects Bilibili users' overuse behavior.H4: Stress relief has a positive impact on Bilibili users' overuse behavior.

Social cognition theory puts forward that when the external environment changes, individuals' cognition will adjust accordingly to adapt to the environmental change. The theory of interaction among cognition, environment, and behavior is suitable to explain the occurrence of addictive behavior[12]. Some scholars have found that self-control has the greatest impact on Internet addiction in the four factors of media use[13]. Self-control has greatly reduced the excessive use of mobile phones[14]. Media literacy refers to users' ability to judge and understand the information in media, which will affect users' ability to use Bilibili reasonably. At the same time, research has found that social media helps people with high levels of social anxiety engage in peer communication by providing them with a safe environment, which in turn alleviates social isolation[15, 16]. Based on social cognition theory, this study selects three factors of self-control, media literacy, and extroversion from the aspect of individual factors, and two factors of peer influence and the sense of belonging from the aspect of environmental factors, and proposes the following research hypotheses:H5: Self-control has a significant negative impact on Bilibili users' overuse behavior.H6: Media literacy has a significant negative impact on Bilibili users' overuse behavior.H7: Extroverted personality has a significant negative impact on Bilibili users' overuse behavior.H8: Peer influence has a significant positive influence on Bilibili users' overuse behaviorH9: The sense of belonging has a significant positive impact on Bilibili users' overuse behavior.

2 Participants and procedure

2.1 Participants

Investigating research on Bilibili user groups using a random sampling survey method and online questionnaire distribution systems. Before the formal survey, a certain range of pre-test (N=230) was conducted among the target population. According to the results of the pre-test analysis, the questionnaire was adjusted and revised to improve its rationality and effectiveness. A total of 501 questionnaires were collected in the formal survey, and 305 valid questionnaires were obtained after artificial removal, with an effective recovery rate of 60%.

2.2 Procedure

The questionnaire is designed based on the research questions and hypotheses, and the questionnaire dimensions and model are established by combining the contents of the pre-interviews. In terms of scale design, reference was made to previous relevant classical research literature, and measures with good reliability and validity were selected from them, which were modified according to the characteristics of Bilibili's user behavior. The Cronbach α coefficient and the KMO value of each measurement item in the questionnaire scale were all greater than 0.7, and the cumulative variance contribution rate (after rotation) reached 80%, indicating good reliability and validity of the questionnaire. After the questionnaire is predicted, the factor load coefficient of each measurement term is obtained by exploratory factor analysis, the problem of partial inconsistency is deleted, and the questionnaire is finally determined. Further, the over-use dimensions are all divided into > 3 points, that is, the Bilibili excessive user; excessive dimension range (m) ≤ 3 , that is, the normal user of the Bilibili platform.

3 Results

3.1 Bilibili user usage

Among Bilibili users' favorite areas, the film and television area account for the highest proportion (60.13%), followed by lifestyle (59.80%), animation (50.33%), learning (34.62%), and live broadcasting (30.07%). In terms of the frequency of users' use, 2-4 times per week accounted for the highest proportion (41.18%), and the frequency of users' use more than 5 times per week accounted for 23.53%, indicating that some users have a high degree of use and dependence. At the same time, the average time spent on Bilibili is 1-2 hours, accounting for 52.61%, and the average time spent on Bilibili is more than 60 minutes, accounting for 73.52%, indicating that these users have a more serious addiction.

3.2 Reliability and validity analysis

In this study, the Cronbach Alpha coefficient was used to test the reliability of the questionnaire scale. A higher alpha value indicates better internal consistency of the measurement. SPSS26.0 was used to analyze the reliability of each measurement scale in the questionnaire. The reliability of all scales is greater than 0.7, and the reliability of the total scale is 0.9, so it is considered that the questionnaire in this study has high consistency and stability, and there is high internal consistency among all measurement questions and

among the overall scale questions, which can be used for subsequent data analysis. Through exploratory factor analysis, the factors of each dimension were tested. Except for item 15, item 16, and item 17, the other items had a strong correlation with each factor, and the structure validity of the measurement scale was good.

3.3 Correlation analysis

This study adopts Pearson correlation coefficient analysis and other test methods to conduct correlation analysis on 9 factors, including entertainment motivation, social need, learning motivation, stress relief, peer influence, sense of belonging, self-control, media literacy, extroversion, and addictive behavior. The specific analysis results are shown in the table below:

Table 1. Analysis of the overuse of Bilibili.

	Pearson correlation	Significance (two tails)	Number of cases
Entertainment motivation	360.**	0.000	305
Learning motivation	288.**	0.000	305
Social demand	580.**	0.000	305
Stress relief	713.**	0.000	305
Sense of belonging	611.**	0.000	305
Peer influence	602.**	0.000	305
Media literacy	356.**	0.000	305
Self-control	296.**	0.000	305
Outgoing personality	536.**	0.000	305

From the above table, we can see that entertainment motivation, social demand, learning motivation, relief of stress, sense of belonging, peer influence, media literacy, self-control, and external character, each of them is significantly less than 0.01 with excessive use behaviors. Among them, the stress and excessive use of behavior are very tight closely related to the social demand, and the excessive use of behavior between closely related. There is a weak positive correlation between entertainment motivation and learning motivation and overuse behavior. Hypothesis 1, hypothesis 2, hypothesis 3, and hypothesis 4 have been preliminarily verified. There is a close correlation between a sense of belonging, peer influence, and overuse behavior. Hypothesis 5 and hypothesis 6 have been preliminarily verified. The significance of media literacy, self-control, extroversion, and overuse behavior was all less than 0.01, and there was a weak positive correlation between media literacy, self-control, extroversion, and overuse behavior, which overturned hypothesis 7, hypothesis 8, and hypothesis 9.

3.4 Binary Logistic regression analysis

Whether the excessive use of as the dependent variable (0 = no, 1 = yes), motivation, learning motivation to entertainment, social demand, ease the pressure, the sense of belonging, peer influence, media literacy, self-control, outgoing personality nine factors as the independent variable binary Logistic regression analysis, the results showed that entertainment motivation scores and excessive use of score positive association. When the score of entertainment motivation increases by one unit, the overuse of Bilibili will increase by 2.18 times (OR=2.180). Scores for social need, stress relief, and sense of belonging were negatively correlated with overuse scores, meaning that for every one-unit increase in scores for social need, stress relief, and sense of belonging, Users' overuse of Bilibili will be reduced by 41.8% (OR=0.418), 26.7% (OR=0.267) and 42.6% (OR=0.426), respectively.

Table 2. Binary logistic regression with overuse as the dependent variable

Independent variables and constants	Partial regression coefficient	Standard error	<i>p</i>	<i>OR value</i>	<i>OR 95% CI</i>
Entertainment motivation	0.779	0.355	0.028	2.180	1.0894.369~
Learning motivation	0.391	0.325	0.228	1.479	0.7832.796~
Social demand	0.873	0.293	0.003	0.418	0.2350.742~
Stress relief	1.321	0.257	0.000	0.267	0.1610.442~
Sense of belonging	0.852	0.292	0.004	0.426	0.2400.756~
Peer influence	0.147	0.379	0.698	0.863	0.4111.185~
Media literacy	0.389	0.373	0.297	1.475	0.7103.066~
Self-control	0.414	0.305	0.174	1.513	0.8332.748~
Outgoing personality	0.080	0.319	0.801	0.923	0.4941.724~
constants	3.221	1.155	0.005	25.056	

4 Conclusion

In this study, semi-structured interview and questionnaire were adopted to analyze the influencing factors of Bilibili users' overuse behavior. Through the descriptive statistical analysis, it was found that the respondents' favorite area was the film and television area, with an average value of more than 3 points in the dimension of overuse behavior, indicating the phenomenon of Bilibili users' overuse behavior. But at the same time, the mean is not more than 4 points, indicating that Bilibili users' use behavior has not reached the level of addiction or even unable to extricate themselves. Entertainment motivation, learning motivation, social need, and pressure relief in the motivation demand dimension of the research model have a significant positive effect on Bilibili users' overuse behavior, while a sense of belonging and peer influence in environmental factors have a significant positive effect on Bilibili users' overuse behavior.

Among the motivation needs, entertainment motivation, learning motivation, social needs, and pressure relief have a significant positive impact on Bilibili users' overuse behavior, which indicates that Bilibili can better meet the needs of different user groups. The study found that college students pay more attention to the functionality and entertainment of learning videos, which meet the needs of self-realization and social communication. Among environmental factors, sense of belonging and peer influence in environmental factors have a significant positive impact on Bilibili users' overuse behavior. This indicates that the over-users of Bilibili are influenced by their peers. This conclusion is consistent with previous research findings on peer influence on Internet addiction[17]. Among individual factors, media literacy, self-control, and extroversion are positively correlated to Bilibili users. This is contrary to the previous conclusion about short video addiction[18]. That's probably because Bilibili is not just an entertainment-oriented video platform, but also an online learning platform. The higher the individual's media literacy and self-control are, the more he can distinguish the value of using Bilibili for learning, thus confusing.

5 Discussion

Bilibili overuse needs to be looked at objectively. Because we found during the interview that excessive use of Bilibili may also have some positive effects. First, Bilibili can effectively relieve psychological pressure. This study found that pressure is the first-factor

affecting Bilibili users' excessive use. Relaxing and entertaining videos on the platform can relieve pressure and mood well to a certain extent, because moderate immersion can help relieve the pressure faced by users and relieve pressure to a certain extent. Secondly, Bilibili can better meet the learning needs of college students. This study found that more users use Bilibili for learning. This is because Bilibili has a large number of excellent videos with high learning value, such as rich course resources and experience sharing of the master in the knowledge section, which can fully meet the needs of users for independent learning. Thirdly, the immersive experience associated with the use of Bilibili is conducive to the play of creative thinking. In the process of immersive experience, users can get the corresponding demand satisfaction and self-identification. Some interesting original videos may trigger more users to play their creativity. Moderate use of Bilibili has certain positive effects, but excessive use will also bring many negative effects on users' psychology, physiology, life, and learning, etc. Therefore, we propose the following intervention measures for excessive use of Bilibili based on the previous research conclusions: In the user's dependence, the medium plays the main role. The Bilibili platform should be responsible for building an intervention system for excessive use of users to prevent psychological production. Pay attention to the monitoring of users, including usage time and frequency of use, current Bilibili It has been on the line, but the unclear intervention function is not strong, Bilibili can use the frequency and usage time prompt function to strengthen the user's anti-addiction system. The platform can actively guide users to correctly understand Bilibili's excessive use by short-sighted frequency propaganda on the disadvantages of excessive use and sharing cases of Internet addiction. It is also important to guide users to explore their real needs for Bilibili. A rational understanding of the internal purpose of users' use of Bilibili and whether it is for entertainment or social interaction will help to enhance the understanding of individuals. Taking the appropriate approach to the problem can avoid long-term over-reliance on Bilibili. To cultivate users' media literacy, that is, users should rationally recognize their needs and benefits of using media, and prevent passive media dependence or behavior. Form correct cognition and understanding of Internet media through publicity and education, and cultivate reasonable use habits of media and Internet products. Both platform constraints and government supervision are ultimately implemented on users. If users can consciously enhance their quality, the occurrence of excessive use behavior of Bilibili users can be reduced from the root.

References

1. Al-Samarraie, H., Bello, K.-A., Alzahrani, A.I., Smith, A.P., Emele, C.: Young users' social media addiction: causes, consequences and preventions. *Inf. Technol. People.* (2021)
2. Zhang, X., Wu, Y., Liu, S.: Exploring short-form video application addiction: Socio-technical and attachment perspectives. *Telemat. Inform.* 42(2019)
3. Liu, Y., Ni, X., Niu, G.: Perceived Stress and Short-Form Video Application Addiction: A Moderated Mediation Model. *Front. Psychol.* 12 (2021)
4. Yang, Z., Griffiths, M.D., Yan, Z., Xu, W.: Can Watching Online Videos Be Addictive? A Qualitative Exploration of Online Video Watching among Chinese Young Adults. *Int. J. Environ. Res. Public Health.* 18(2021)
5. Md Rajibul Hasan;;Ashish Kumar Jha;;Yi Liu: Excessive use of online video streaming services: Impact of recommender system use, psychological factors, and motives. *Computers in Human Behavior.* (2018)

6. Khalili-Mahani, N., Smyrnova, A., Kakinami, L.: To Each Stress Its Own Screen: A Cross-Sectional Survey of the Patterns of Stress and Various Screen Uses in Relation to Self-Admitted Screen Addiction. *J. Med. Internet Res.* 21(2019)
7. Li, Q., Guo, X., Bai, X., Xu, W.: Investigating microblogging addiction tendency through the lens of uses and gratifications theory. *Internet Res.* 28(2018).
8. Scherr, S., Wang, K.: Explaining the success of social media with gratification niches: Motivations behind daytime, nighttime, and active use of TikTok in China. *Comput. Hum. Behav.* 124(2021)
9. Jane Trowbridge: *The Uses of Mass Communications: Current Perspectives on Gratifications Research.* Jay G. Blumler , Elihu Katz. Jane Trowbridge. (1976)
10. Gao, W., Liu, Z., Li, J.: How does social presence influence SNS addiction? A belongingness theory perspective. *Computers in Human Behavior.* 77(2017)
11. Blackwell, D., Leaman, C., Tramosch, R., Osborne, C., Liss, M.: Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences.* 116(2017)
12. Prochaska J O;;DiClemente C C;;Norcross J C: In search of how people change. Applications to addictive behaviors. *The American psychologist.* (1992)
13. Khang, H., Kim, J.K., Kim, Y.: Self-traits and motivations as antecedents of digital media flow and addiction: The Internet, mobile phones, and video games. *Comput. Hum. Behav.* 29 (2013)
14. Pourrazavi Sara;;Allahverdipour Hamid;;Jafarabadi Mohammad Asghari;;Matlabi Hossein: A socio-cognitive inquiry of excessive mobile phone use. *Asian journal of psychiatry.* (2014)
15. Ho, S.S., Lwin, M.O., Lee, E.W.J.: Till logout do us part? Comparison of factors predicting excessive social network sites use and addiction between Singaporean adolescents and adults. *Comput. Hum. Behav.* 75(2017)
16. Fernandez, K.C., Levinson, C.A., Rodebaugh, T.L.: Profiling: Predicting Social Anxiety From Facebook Profiles. *Soc. Psychol. Personal Sci.* 3(2012)
17. Wu, J.Y.W., Ko, H.-C., Wong, T.-Y., Wu, L.-A., Oei, T.P.: Positive Outcome Expectancy Mediates the Relationship Between Peer Influence and Internet Gaming Addiction Among Adolescents in Taiwan. *Cyberpsychology Behav. Soc. Netw.* 19(2016)
18. Song, W.J., Park, J.W.: The Influence of Stress on Internet Addiction: Mediating Effects of Self-Control and Mindfulness. *Int. J. Mental Health Addict.* 17 (2019).