The Effect of Online Social Exclusion on Problematic Social Network Use among College Students: The Mediating Role of the Fear of Missing Out

Zhang Xinhao and Yasmin Hussain

Abstract – Objective: In the Internet era, young people's use of social networks has increased significantly, especially college students, who are eager to make more friends and find it difficult to resist the temptation of the Internet. Therefore, exploring the influencing factors of problematic social network use behaviour of college students can provide effective intervention or guidance for the positive development of college students' physiology and psychology. Methods: By using the Online Social Exclusion Questionnaire, the Fear of Missing Out scale, the Problematic Social Network Use Questionnaire for data collection. Results: (1) Under the condition of controlling for gender, online social exclusion significantly positively predicted college students' problematic social network use;(2) the Fear of missing out played a partial mediating role between online social exclusion and college students' problematic social network use (95%CI did not include 0). Conclusion: The Fear of Missing out plays a mediating role in college students' online social exclusion and problematic social network use, and we can adjust their online use by alleviating their emotional state.

Keywords – Network social exclusion; Problematic social network use; Fear of Missing out; Network social support

I.   INTRODUCTION

Over the past few decades, the use of the internet in modern times has increased rapidly. During the COVID-19 pandemic, people can use the Internet to complete their studies and work without leaving home, for example, online classes are an online teaching method that has been born under the epidemic, and students can learn online courses through the Internet with electronic devices. Some studies have pointed out (Brailovskaia & Margraf, 2020) that in the post-pandemic Internet era, young people's use of social networks has increased significantly, especially college students, who are eager to make more friends and have difficulty resisting the temptation of the Internet, so it is easier to generate problematic social network use behaviours.Especially for freshmen who have just entered the university campus, due to the huge changes in lifestyle and environment due to the heavy academic pressure and family constraints (Huang, Ma & Zhang, 2021), they are eager to make more friends, but it is difficult to resist the temptation of the Internet, so it is easier to develop problematic social network use behaviour. Problematic social network use refers to a social network use behaviour in which individuals use social networking sites for a long

time, with high frequency and intensity, resulting in further uncontrollable investment of time and energy in social networking sites, which negatively affects the individual's physiological, psychological and behavioural aspects (Jiang et al., 2016).

Some studies have shown that problematic social network behaviours can cause problem behaviours such as decreased academic performance, avoidance behaviour, and cyberbullying in college students (Li & Song, 2022; Jiang et al., 2016) and can increase their negative emotional experiences (Bethany, Thomas & Cheri, 2014; Niu et al., 2016), such as jealousy, depression. It has a negative impact on its psychological and behavioural development. Therefore, exploring the influencing factors of problematic social network use behaviour of college students can provide effective intervention or guidance for the positive physiological and psychological development of college students.

In the discussion on the influencing factors of college students' problematic social network use behaviour in the post-epidemic period, online social exclusion is an external situational factor that cannot be ignored. Online social exclusion refers to the negative psychological experience of individuals feeling excluded by others in electronic media (non-face-to-face) interactions, which is an extension of real social exclusion in the online environment (Jin et al., 2019). In the need-threat model, social exclusion reduces an individual's sense of self-esteem, belonging, control, and meaning (Xu, Hu & Guo, 2017; Baumeister & Tice, 1990), which induces individuals to experience negative emotions such as loneliness, jealousy, depression, and anxiety (Yang & Li, 2020), and previous studies have also shown that college students who experience rejection will be dominated by negative coping styles (Zhang & Liu, 2019). According to the theory of network compensation psychology, the network can give excluded individuals the experience of a sense of accomplishment or belonging (Ci & Jia, 2001). Individuals who perceive social exclusion in an online environment have poor emotions and their desire for relationships and belonging needs are severely hampered (Wu, 2017), but they are more likely to choose online due to the pandemic (Davis, 2001). The network can make up for the lack of social resources of individuals in the post-epidemic period, which is more likely to lead to the occurrence of problematic social networks. Therefore, this study proposes hypothesis 1:

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online social exclusion can positively predict problematic social network use behaviour.

In recent years, some studies have shown a strong relationship between missing out anxiety and problematic social network use (Cheng, Zhang & Han, 2021). Missing out anxiety, also known as fear of missing out, refers to a diffuse anxiety that arises from an individual's fear of missing out on a beneficial experience of others (Przybylski et al., 2013). Fear of missing out is a subtype of anxiety and has both state and trait psychological attributes. According to the social compensation hypothesis, people with high levels of social anxiety are more inclined to use social media to obtain positive psychological experiences that cannot be obtained in real social networking (Padgett et al., 2017), they are more dependent on social media (Zhang & Zhou, 2018), and they are more likely to have problematic social network use behaviours. Therefore, missing out anxiety may positively predict problematic social network use among college students. In addition, many studies have shown that social exclusion can directly predict the occurrence of anxiety (Jia et al., 2019). This is not only in line with the need-threat model, but also in line with Przybylski's theory based on self-determination, which states that an individual's effective self-regulation and mental health both stem from the satisfaction of basic psychological needs, and that fear of missing out is a state of detachment from self-regulation, so the more unmet an individual's basic psychological needs are, the higher the degree of fear of missing out. That is, when an individual is rejected by the group, the perceived rejection or marginalization leads to a lack of psychological needs and a strong desire to connect with others, resulting in missing anxiety, and in order to alleviate the anxiety, the individual turns to the Internet for vicarious gratification (Hu et al., 2017), which in turn leads to the individual's problematic social network use. Therefore, this study proposes hypothesis 2: online social exclusion positively predicts missing anxiety, and missed anxiety positively predicts problematic social network use, and the fear of missing out can play a mediating role between online social exclusion and problematic social network use.

Online social support refers to the degree to which individuals are respected, supported, and understood in their interpersonal interactions on the Internet (Ding & Shen, 2005). According to the social support buffer hypothesis, social support can protect an individual's physical and mental health by buffering the effects of stressful events (such as cyber injury) and some risks. However, recent studies have found that perceived social support online acts as a counter-stress buffer in online harm and negative consequences (Li et al., 2018; Ouyang et al., 2020; Fang et al., 2020), i.e., network social support plays a reinforcing role in the relationship between risk factors and negative outcomes. Individuals who perceive high social support have a

stronger relationship between online harm and alcohol abuse (Ouyang et al., 2020), and individuals who receive higher social support are more eager for online interaction and therefore have more difficulty controlling their online impulses (Ding, Xiao & Zhang, 2013). In addition, the cognitive model of social anxiety also mentions that having irrational beliefs and persistent fears in the face of negative evaluations of others is a common state of anxiety (Clark & Well, 1995). Missing out on the experience of the anxious person when they go online and the cognitive response of the anxious person together affect the online behaviour of the individual (Jin et al., 2016). For individuals who perceive high social support online, they feel trusted and respected when they go online, and the sensitivity and insecurity caused by cognitive biases may be alleviated in those who are anxious about missing out, so the impact of missing anxiety on problematic social network use may be enhanced. On the contrary, people with missing out on anxiety with low perceived social support do not have a sense of security and belonging in the process of online socialization but inhibit their use of social networking sites. Therefore, according to the buffer theory model of social support and the cognitive model of anxiety, online negative emotional experience may moderate the relationship between missing out anxiety and problematic social network use. Based on this, hypothesis 3 is proposed: network social support plays a moderating role in the relationship between loss anxiety and problematic social network use.

In summary, this study constructs a structural equation model (Fig. 1) to explore the combined effects of online social exclusion, missing anxiety, and online social support on college students' problematic social network use. In order to provide some theoretical guidance for the mental health intervention of college students in the post-epidemic period.
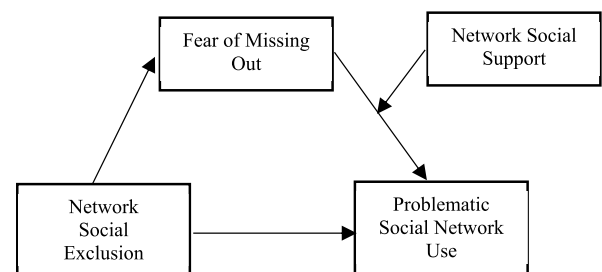

Figure 1 Hypothetical Model Diagram

II.   METHOD

Objects

Using the cluster sampling method, taking the university students in Shandong Province as the research object, the trained teachers served as the main test, the consent of the students was obtained before the test, the guidance language was unified, and the

questionnaires were filled in anonymously, a total of 741 questionnaires were recovered, and 728 valid questionnaires were obtained after eliminating the invalid questionnaires, with an effective rate of 98.2%. There were 299 boys, accounting for 41.1 per cent, and 429 girls, accounting for 58.9 per cent, with an average age of 19.14±0.77.

Measurement

Online Social Exclusion Questionnaire. A questionnaire on online social exclusion among college students developed by Tong Yuantian (2015) was used. The questionnaire has a total of 14 items, and is scored on a 5-point scale of 1~5 (never~always), and the higher the score, the deeper the individual's perceived social exclusion online. The questionnaire includes three dimensions: online group chat, online personal space and online individual chat. Cronbach's α coefficient in this study was 0.98.

Questionnaires for the use of problematic social networks. The problematic social network usage scale revised by Wei Qi (2018) et al. was used, which had a total of 8 items, and 1~5 (completely inconsistent ~ completely compliant), and the higher the score, the more serious the tendency to use problematic social networks. The Cronbach's α coefficient in this study was 0.94.

Fear of Missing out questionnaires. The Chinese version of the Missing Anxiety Questionnaire developed by Przybylski et al. (2013) et al. and revised by Li Qi et al. (2019) was used. The questionnaire consists of two factors, "fear of missing information" and "fear of missing out on situations", with a total of 8 items and a score of 5 points ("1" for "completely disagree" to "5" for "completely agree"). Cronbach's α coefficient in this study was 0.92.

Network Social Support Questionnaire. The online social support questionnaire developed by Liang Xiaoyan et al. (2008) was used to evaluate the social support received by individuals in online communication. The questionnaire includes 4 dimensions, namely emotional support, information support, instrumental support and social member support, with 23 questions. Higher scores indicate that individuals feel more support from the online society. Cronbach's α coefficient in this study was 0.98.

Data processing

SPSS23.0 and SPSS macro process v3.5 plug-ins are used for data processing. In this study, the data of all measurement items in this study were standardized, the one-way method was used to test whether there was a common method bias, the product difference correlation was used to explore the relationship between the main variables, and the percentile Bootstrap method was used to test the mediating effect and moderating effect.

III. RESULTS

Common method deviation test

The studies used a self-report method to collect data, and there may be common methodological biases that could affect the results. Therefore, the Harman one-way test was performed on the data, and the results showed that there were 6 factors with the characteristic root greater than 1, and the explanatory variation of the first factor was 36.6%, which was less than the critical standard of 40%, indicating that there was no common method bias.

Descriptive statistics and related analysis

As can be seen from Table 1, there is a significant positive correlation between problematic social network use and online social exclusion, missing anxiety and online social support.

TABLE 1 DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENT MATRIX FOR EACH VARIABLE

	M	SD	1	2	3
1 Network Social Exclusion	24.66	11.44			
2 Problematic Social Network Use	16.51	7.29	0.59**		
3 Fear of Missing Out	17.84	7.39	0.52**	0.72**	
4 Network Social Support	66.31	20.52	0.14**	0.26**	0.32**

*P＜0.05，**P＜0.01，***P＜0.01.

Moderated mediating test

All variables in the model were standardized, SPSS23.0 and PROCESS macro programs were used for data analysis, and the Bootstrap method was used for sampling (5000 times). First, Model 4 in PROCESS is used to test the mediation effect. Under the condition of controlling for gender, this paper examines the mediating role of missing out anxiety in the relationship between exclusion and problematic social network use in the online society. As shown in results, online social exclusion can significantly positively predict problematic social network use ($\beta=0.63$, t=19.77, P<0.001), and can significantly positively predict missed anxiety ($\beta=0.57$, t=17.20, P<0.001), and when missed anxiety is included in the regression equation, online social exclusion can still significantly positively predict problematic social network use ($\beta=0.30$, t=-10.03, P). <0.001), but the regression coefficient decreased from 0.63 to 0.30, suggesting that missing anxiety may play a partial mediating role. The bias-corrected Bootstrap method showed that the mediating effect was 0.32, and the 95%CI was 0.27~0.38, excluding 0, so the mediating effect of missing anxiety

between online social exclusion and problematic social network use was significant, and the mediating effect accounted for 50.79% of the total effect.

Secondly, in order to clarify the moderating role of network social support in the mediation model, Model 14 in Process is used to test whether network social support plays a moderating role in the second half of the mediation model. The results of moderating analysis showed that missing anxiety could significantly and positively predict problematic social network use (β=0.53, t= 17.75, P<0.001), and it had the same significant effect on problematic social network use as the product term of network social support (β= 0.06, t=2.25, P<0.05), with a 95%CI of 0.01~0.12, so the impact of missed anxiety on problematic social network use was moderated by network social support.

The simple slope test was used to further clarify the moderating effect of network social support, and the simple slope effect was plotted according to the group according to plus or minus one standard deviation (Fig. 2). The results showed that missing out anxiety in the low online social support group could significantly positively predict problematic social network use (β = 0.27), with a 95% CI of 0.20~0.35, while in the high online social support group, the positive predictive effect was greater (β= 0.34), with a 95% CI of 0.27~0.42. This indicates that with the increase of missing out anxiety, the problematic social network use behaviour shows an upward trend regardless of whether it is high or low online social support, but the upward trend of high online social support is more obvious than that of low online social support.
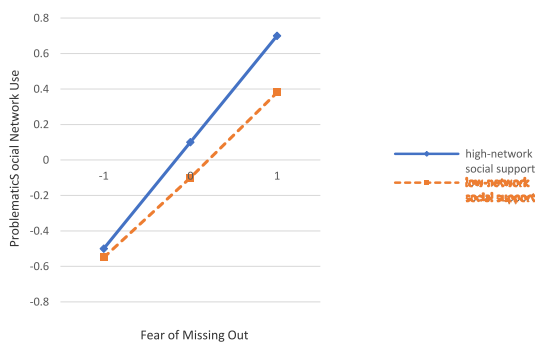

Figure 2 The Moderating Effect of Network Social Support

IV.   DISCUSSION

The impact of online social exclusion on problematic social network use

The results of this study show that online social rejection is significantly positively correlated with problematic social network use, and online social rejection can significantly and positively predict college students' problematic social network use, supporting the study's hypothesis H1. Previous research has found that social exclusion has a positive predictive effect on problematic Internet use (Chen, 2018). On this basis, this study further confirmed that problematic social network use is positively affected by online social exclusion. Davis'

cognitive-behavioural model can explain the above point of view (Davis, 2001). This theory believes that an important factor affecting individual problematic use is the individual's maladaptive cognition. People who are excluded from online society have a negative perception of themselves. and evaluation, and will adopt certain strategies to protect themselves and escape reality. Therefore, social networks may be overused out of a need to compensate for the lack of self-esteem and relationships due to rejection. For college students, high-frequency use of social networks can help them gain a sense of belonging and improve self-esteem, making up for the lack of communication opportunities with peers in real life. In this situation, for students who are excluded from the online society, social networks provide great convenience for them to connect with the outside world and seek positive social relationships. This makes college students addicted to the use of social networks, and even causes serious network problems. road addiction and other problem behaviours (Wang, Gao & Liu, 2022). In addition, due to the expansion of the number of people communicating on the Internet, there is a lack of social information clues (such as facial expressions, body language, etc.), excessive use of social networks, exacerbating social exclusion on the Internet, which may form a negative cycle effect and affect the physical and mental health of college students. develop.

Moderated mediating role

The mediation effect analysis results of this study show that missing out anxiety plays a mediating role between online social exclusion and problematic social network use, and the research hypothesis H2 is verified. After college students experience social exclusion on the Internet, it can directly affect problematic social network use, and it can also indirectly affect problematic social network use through the generation of missing out anxiety. This result is consistent with previous research results (Buglass et al., 2016). Williams proposed the need-threat model (Williams, 2009), which believes that social exclusion threatens basic human relationship needs and efficacy needs. When relationship needs are not met, individuals will seek social acceptance and want to establish and maintain harmonious, intimate, and stable social connections with others. And research by Przybylski (2013) and others confirmed that the fear of missing out stems from the failure to meet certain psychological needs of the individual. That is, individuals with lower levels of psychological need satisfaction tend to report higher levels of fear of missing out, manifested in the desire to know all the movements of others, the fear of missing out on certain information, and the constant clicking and refreshing of updates on social networks. Therefore, online social exclusion can serve as a predisposing factor affecting individuals' problematic social network use through FOMO.

On the basis of verifying the mediating effect of missing out anxiety, this study further explored the moderating role of online social support in this mediating process. The results found that online social support

moderated the second half of the mediation process, that is, at high levels of online social support, anxiety about missing out had a greater predictive effect on problematic social network use, supporting the study's hypothesis H3. This result shows that online social support can enhance the negative impact of missing out anxiety on problematic social network use. This result is consistent with previous studies (Ouyang et al., 2020; Fang et al., 2020; Brailovskaiax et al., 2019) As a complement to the theory of the reverse stress-buffering effect of social support. Existing research results show that the number of likes and comments people receive on social networks is positively related to the intensity of social support perceived by individuals (Wohn, Carr & Hayes, 2016). It can also be said that individuals with high network social support are liked by more people in the social network. Especially in the post-epidemic period, online social networking may be the main way of socializing. At this time, the more support (positive feedback) an individual receives in social networks, the more it will drive individuals to spend more time using social networks. Therefore, individuals with high levels of FOMO who receive high levels of social network support will continue to use social networks until problematic social network use results. With the arrival of the post-epidemic era, college students, as the main force in Internet use, are more likely to have anxiety about missing out. However, the mental development of college students is still in the stage of improvement, and there is still a lack of correct ways to alleviate anxiety. Reducing perceptions of online social support may be an effective way to reduce problematic social network use among college students.

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