

Does mobile social media undermine our romantic relationships? The influence of fear of missing out (FoMO) on young people's romantic relationship

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Abstract

Introduction. *The widespread use of social media has a transformative effect on people's work and lives. With the increasing information explosion and more cases of social media addiction, users have been always worried that they have missed some information. FoMO (fear of missing out) of mobile users emerges. FoMO is an important theory that explicates the underlying cognitive, psychological, and social processes of dark or negative sides of online information behaviour (Shen, et al., 2021). This paper explores the impact of FoMO of post-90s generation mobile users on romantic relationship in the context of social media.*

Methods. *The questionnaire survey was conducted in December 2017. The sample size was 274 Chinese post-90s (people born in the 1990's) mobile social media users who were in love for at least one year and unmarried. The statistical methods such as regression analysis were adopted.*

Analysis. *The impacts of FoMO on romantic relationship were analyzed from the perspectives of three dimensions of FoMO: cognitive, emotional and behavioural manifestations. The quantitative analysis of survey data employed the statistical package SPSS 26.0.*

Results. *The behavioural manifestation of FoMO has a significant negative effect on romantic relationships, while emotional and cognitive manifestations of FoMO have no significant effects on romantic relationships. This indicates that driven by FoMO, the post-90s mobile users often check the information in device frequently and subconsciously, resulting in excessive information behaviours, which does harm to the development of romantic relationship. It also implies that the view of simply treating the anxiety disorder FoMO as a psychological symptom is debatable.*

Conclusion. *FoMO has affected users' interpersonal relationship and behaviour in the offline environment, especially for post-90s generation users. This paper enriches the research on the effects of psychology and information behaviour of mobile social media users on their interpersonal relationship.*

Keywords: *fear of missing out, information behaviour, romantic relationship, mobile social media, college students*

Introduction

In the context of mobile social media, being immersed in massive amounts of information, users subconsciously view mobile devices and display information behaviours such as browsing, searching and sharing frequently. 2018 WeChat Data Report shows that the average daily user population of WeChat in September reached 902 million, an increase of 17% compared with last year; the number of messages per day was 38 billion times, an increase of 25% over the last year; 61.4% of users browse on Moments every time when they check WeChat; more than 60% of users open WeChat more than 10 times per day, and heavy users who check WeChat more than 30 times per day account for 36% (WeChat, 2019). In addition, Weisberg (2016) showed that 30% of respondents said that they are heavily dependent on their phones. We are transforming into a mobile device person. The constantly emerging information indicates the latest status of friends, while the user's anxiety is also increasing. Many users feel that they are becoming onlookers of others' lives or outsiders who are always one step late, which inevitably generates varying degrees of disconnection anxiety. Users have always suspected that they have missed some information and need to touch mobile devices, which has evolved into a widespread social syndrome. Therefore, fear of missing out (FoMO) caused by the proliferation of information in mobile social media has attracted the public attention. Information behaviour of mobile users with FoMO, such as viewing, replying and forwarding become research issues (Boldi, et al., 2012; Li, et al., 2019).

The widespread use of social media has a transformative effect on people's work and lives. Bawden and Robinson (2015) claim that the applications of advanced IT have exerted impacts on all aspects of the communication chain in information science: creation, dissemination, sharing, organization, retrieval and preservation of information. As the new form of IT, social media also follow the same way. For example, it is much easier for people to connect with each other by Facebook or Twitter. The informal social communication is more efficient than before. The world becomes smaller. By using the entire Facebook network, Backstrom et al. (2012) conducted the largest Milgram-like experiment and found that the average degree of separation is 3.74, which indicates a smaller world due to the impact of a highly connected social media environment. Boyd pointed out that from the eyes of American teenagers, social media really is the cool space. There are also clearly benefits to using social media for initiating and maintaining romantic relationships. However, just like Boyd (2014) also said: '*It is complicated*', with the increasing information flood and more and more cases of social media addiction, the dark side of social media emerges. A typical manifestation is FoMO.

The FoMO and subsequent behaviours have a negative impact on people lives, learning, friendship and work. There is growing concern that frequent interactions on social media may replace face-to-face interactions, thereby reducing the quality of social interactions and undermining our social mind (Becker, et al., 2013). Turkle argues that social media can make users lose face-to-face communication tactics; as human beings, our ability of information processing is limited. When technology is integrated into people's lives, it exerts a subtle influence on our interpersonal relationships. The new information and communication technology revolution is decreasing the quality of interpersonal relations including relationships of relatives, colleagues and romantic relationships (Turkle, 2017). According to Kantar's 2017 China Social Media Impact Report, *31% of respondents in the post-90s generation said that social media makes them vacant and impetuous, 34% said that they could not concentrate and 24% said that they were affected by negative values. The percentages of users with such feelings were the highest in all age groups* (Brami, 2017). This implies that the post-90s generation (people born in the 1990's) has a more intensive experience of the negative effects of using social media. In the mobile social media context, the post-90s generation relies more and more on signals, including text, picture, voice and video to build or maintain interpersonal network. This reliance on virtual world inevitably affects their interpersonal communication behaviour in the offline environment. In addition, relevant research also demonstrates that the post-90s generation attaches great importance to their romantic relationships (Wei, 2014). However, the post-90s generation is more accustomed to employ mobile social media to communicate with their love partners, be informed about each other's living situations and present a perfect love image to the outside world (Wu, 2019). Therefore, the use of mobile social media greatly

affects the cognitive, emotional and interactive behaviour of post-90s who are in love, and also affects the expression pattern of love feelings and the game rules of love (Yan, 2007). Nevertheless, few studies explore how FoMO influences the post-90s relationship in social media context.

This paper takes the post-90s mobile users as the research population and investigates the impact of the FoMO on the romantic relationship of users in the context of mobile social media. It then discusses how compulsive information behaviours of users driven by the FoMO influence their romantic relationships. The online compulsive information behaviour of users with FoMO is diversified, including browsing, information searching, downloading and checking, etc. Online checking behaviour is the most frequent among these information activities. It is not only active but also often reactive or passive through receiving and compulsively responding to many social-related notifications (Elhai, et al., 2021). In addition, it also interprets the impact of the FoMO on post-90s romantic relationships from the psychological perspective (emotional and cognitive).

Literature review

Stamell first proposed the concept of *'fear of missing out'* on The Huffington Post in 2002. Since then, many related discussions have been carried out, but most of them are published on non-academic journals. Until 2013, Przybylski et al. (2013) defined the concept of FoMO in an academic sense. The *'fear of missing out'* refers to *'a widespread anxiety that occurs when an individual fails to get what he wants to know in his absence is mainly manifested in the desire to continue to know what others are doing.'* Lai (2016) studied FoMO symptoms of 26 healthy adults by using a scale developed by Przybylski et al. (2013) and adopting event-related potential technique (ERP). The results showed that people with high levels of FoMO have more active brain and are more sensitive to the clues to information about social inclusion. They are also more eager to be acknowledged by others. These traits make their attention more easily attracted by the positive interaction among others, and they are more inclined to gain the acknowledgments from others through social media, which leads to more frequent use of social media. Tandon et al. (2021) conducted a systematic literature review on FoMO among social media users. They also developed a holistic digital ecological framework from which FoMO generates. FoMO reflects users' emotional experience such as anxiety when using social media (Reagle, 2015). Therefore, anxiety is the basis of FoMO. Anxiety is a temporary uneasiness caused by a particular situation, mainly manifested in the form of a state anxiety (Dossey, 2014). When users log in mobile social media, their moods of anxiety and discomfort will deteriorate (Buglass, et al., 2017). It is the FoMO that caused the worsen anxiety (Wegmann, et al., 2017).

The impact of FoMO on mobile social media users is the main concern of academics (Dorit, 2015). Holly's research shows that FoMO has a negative impact on users' subjective well-being such as emotions, physical and interpersonal relationships (Stead and Bibby, 2017). Several studies demonstrate a high degree of FoMO is significantly correlated to time spent on social media and negative emotions like depression and anxiety, low life satisfaction, low social ability and low interpersonal relationships (Baker, et al., 2016; Elhai, et al., 2016; Oberst, et al., 2017). It is found that the previous research on the FoMO and its impact on users focus on the individual psychological level. The anxiety is regarded as a psychological process, the core element of which is the psychological expectation of uncertainty about the interaction with specific environment, including the individual's perceived psychology (such as fear) and physiological response, is a typical negative emotion (Li, 2016). However, whether FoMO is a mental illness, or a compulsive and uncontrolled behaviour needs more discussion. Zhao et al. (2017) pointed out that the traditional definition of FoMO concept focuses more on the ubiquitous social environment and the psychological traits of users. They instead define and discuss the concept of FoMO as an information behaviour. From their view, users keep an instant connection with the physical or virtual worlds through mobile information behaviour such as browsing, searching and socializing. When their need for instant connection cannot be satisfied, they will generate anxious emotions, including unease, discomfort, irritability and panic. They suggested that it is necessary to borrow theories and models of information

behaviour in order to determine the antecedents, mediating variables and moderating variables of FoMO in the social media context. Existing research has ignored the different FoMO characteristics of different user age groups. To this end, Ye et al. (2018) employed in-depth interviews and critical incident analysis methods to extract the key characteristics of adolescent users' FoMO from five dimensions: situation, purpose, behaviour, results and psychology, and considered that FoMO is composed of people's subconscious or psychological anxiety and a set of specific actions, action outcomes and psychological characteristics caused by anxiety. They defined FoMO as users' information behaviour and its consequent results and psychological influence in the context of mobile social media in order to alleviate the anxiety caused by their desire to maintain constant contact with the outside world. The primary excessive and frequent information behaviour of young mobile users with FoMO is searching for music and videos, playing games and learning about celebrity activities for recreation, chatting, reviewing, checking friends' updates for socializing and browsing news microblog to be informed (Ye, et al., 2018). On this basis, Ye et al. (2018) developed a FoMO measurement scale for college students consisting of 30 items of four dimensions: contextual characteristics, behavioural characteristics, outcome characteristics and psychological characteristics. These studies make up for the lack of attention to the special user groups in previous studies (Ye and Li, 2019). FoMO is not regarded as a mental disorder anymore but as subconscious, compulsive habits of users.

Most existing research on the impact of FoMO on romantic relationship concentrate on psychological issues. For example, the usage of mobile social media has a negative impact on romantic relationship (Utz and Beukeboom, 2011), which will lead to tension and conflict between lovers (Fox and Moreland, 2015). FoMO has a negative effect on the subjective well-being of users, especially on individual sentiment and emotional relationships (Stead and Bibby, 2017). Kross et al. (2013) surveyed Facebook users and found that with the increasing frequency of social media usage, users' subjective well-being, including affective well-being and cognitive well-being, showed a significant downward trend. Przybylski also suggested that FoMO can be used as a predictor to mediate the relationship between different levels of happiness (including psychological needs, emotional state, and emotional satisfaction) and mobile social media usage (Przybylski, et al., 2013). Beyens (2016) believes that users with higher levels of FoMO tend to replace face-to-face interpersonal interactions with social media communication, which increases the user's loneliness and even the estrangement. This does harm to the psychological intimacy with their lovers in the romantic relationship.

According to the theory of cognitive representations of romantic relationships, the intrinsic representation of romantic relationship is mainly manifested by individual's cognition, emotion and behaviour (Furman and Simon, 1999). Therefore, it is not sufficient to explore the anxiety effect of the user induced by FoMO on the psychological level. It is necessary to further explore the influence of the compulsive social media usage behaviour of users triggered by FoMO on their romantic relationship. Relevant research shows that users who have heavily used mobile phones have a certain degree of '*Alexithymia*' (Billieux, et al., 2008), which can lead to an inability to accurately understand each partner's behaviour in offline romantic relationships. In addition, frequent switching between various intelligent terminals inevitably causes distraction of users (Hao, et al., 2019; Mei, et al., 2018; Wardecker, et al., 2016).

Research hypotheses

The romantic relationship refers to the love relationship between unmarried spouses. Its three core elements are emotional communication, needs satisfaction and mutual dependence (Wen, et al., 2014). Specifically, in this study, post-90s generation's romantic relationship refers to a mutually recognized, strong emotional connection and interaction that lasts for a period of time, which makes the lover's cognitive, emotional, and behavioural characteristics different from other relationships (like peer relationships) (Liu, 2017). This paper will study the emotional, cognitive and behavioural manifestations of FoMO (Song, et al., 2017) from the perspectives of psychology and behavioural science, and analyze their impact on the romantic relationship of post-90s mobile users. It should be pointed out that the

cognitive and emotional (affective) manifestations tend to be intertwined in reality. Cognitive scientists believe that emotion is the product of cognitive processing. Lazarus (1991) claimed that cognitive appraisal is the constitutive component of all emotional states and influences the direction and intensity of emotions. This theoretical view also applies to the cognitive-affective complex of FoMO, which is reflected in the following measurement.

Traditional psychology theory states that anxious individuals are prone to have multiple cognitive and evaluation obstacles, such as misinterpretation of risk factors in the situation and issue false alarms, which lead to their inability to systematically process relevant information and then affect their rational judgments (Dhir, et al., 2018). Thus, anxiety can result in a decline in the cognitive ability of the user, and insufficient regulation and control of emotions and attention (Becker, et al., 2013). Cognitive manifestation of FoMO mainly includes anxiety. Zhao et al. (2017) suggested that we cannot simply define FoMO as a pathological symptom, but should analyze its behavioural characteristics and manifestation from the cognitive perspective. Individuals with FoMO cognitively tend to give priority to threat information in a romantic relationship, and they are accustomed to produce distorted self-recognition of romantic relationship. Moreover, cognitive manifestations of FoMO can cause negative attention bias, which has a negative effect on the relationship and its development. Therefore, we propose that:

H1: Cognitive manifestation of FoMO has a significantly negative impacts on post-90s generation's romantic relationship.

Secondly, in the romantic relationship, whether emotional feedback is positive or negative matters. FoMO leads to negative emotions (Beyens, et al., 2016). This kind of emotional state can reduce individual's satisfaction with the relationship, and even lead to the user's psychological dissonance, which is not conducive to the formation of harmonious romantic relationship. However the positive and stable emotional state helps the improvement of subjective well-being (Stead and Bibby, 2017), and enables the individual to better understand the emotional state of the romantic partner, thus facilitating the development of a good intimate relationship. Based on this, we propose that:

H2: Emotional manifestation of FoMO has a significantly negative effects on post-90s generation's romantic relationship.

In addition to subjective psychological experience, FoMO is often accompanied by pertinent behavioural manifestation. Neo-behaviourism psychology puts forward that it is possible to speculate on the internal process of the individual through explicit observable behaviour (Ye, 1992). This viewpoint to some extent bridges the cognitive psychology and behavioural psychology. Research results show that when users play mobile social media, the gain of individual subjective well-being is driven not only by personal traits, but also by behavioural patterns (Chen, 2006). In the context of mobile social media, post 90 generation users are used to speaking with lovers online through words, images and symbols, while they have a certain degree of alexithymia obstacles in their offline love contacts; They lack of the ability to identify and describe emotions, and are unable to transform emotional ability into action ability, which directly affect the quality of romantic interaction (Chen, 2018). In addition, users with a high level of FoMO are more likely to demonstrate a high level of commitment to compulsive usage of social media (Wolniewicz, et al., 2018). High frequency of mobile information behaviour related to their daily studies and lives makes them unable to be '*full of love*' in love interactions, which will lead to the lover's inability to meet the required sense of security or '*possession*' and seriously affects the subjective evaluation of the love relationship satisfaction. It is quite difficult to maintain the relationship in such situation. Based on this, we propose that:

H3: Behavioural manifestation of FoMO has a significantly negative effects on post-90s generation's romantic relationship.

Research design and method

Questionnaire design and scale construction

This paper employed the method of the questionnaire survey to collect data. The survey was performed in accordance with relevant guidelines and regulations in Chinese academia. In addition, all methods were carried out in accordance with relevant guidelines and regulations in Chinese academia. All methods and experimental protocols, including any relevant details, were approved by the University. The informed consent was obtained from all subjects.

As for the scale design, in order to measure the FoMO, we constructed the FoMO measurement scale, which was mainly based on the FoMO measurement scales developed by Zhao et al. (2017) and Song et al. (2017) and Zung's self-rating anxiety scale (SAS). The three independent variables of FoMO are distinct with each other. We revised some items according to the mobile social media scenario. Some measurement items in the scale '*When there is news about other people on mobile social media, I will immediately notice*', '*I always check mobile social media from time to time to avoid missing news updates*' and '*I hope to learn more news about others through mobile social media*' are derived from Song et al. (2017)'s study; Some measurement items '*I often chat with my friends on mobile social media when talking to my romantic partner*' and '*Sometimes if not chatting or browsing on mobile social media, I don't know what I should do*' were from the information anxiety scale (Cao, et al, 2001). It should be noted that social media addiction and FoMO relate closely together. Therefore, some items in our FoMO measurement scale can also be adopted in the social media addiction scenario. Hu and Xu (2019) maintained that compulsive browsing, searching, and collecting massive amounts of trivial and irrelevant (information behaviour symptoms of FoMO) is a typical kind of Internet addiction. It is called online information addiction. Other kinds of Internet addiction are online transaction addiction, online game addiction, online pornography addiction, etc. In the social media context, we can regard FoMO as a critical dimension of social media addiction, which is a derivation of Internet addiction. Zhao et al. (2017) argued that the key feature of Internet addiction (including FoMO) is the dependence on media and technology. This dependence drives users to obsessive and excessive online information. We used post-90s generation's romantic relationship as the dependent variable. To measure it, we employed The love crisis sensing measurement scale in the questionnaire, which is based on the simplified version of the experiences in close relationship scale (ECR-short form, ECR-S) (Wei, et. al, 2001; Wang and Chen, 2013). Some examples of the items in ECR-S are as follows. '*Worry that my romantic partner will not care about me as much as I care about him/her*', '*I need a lot of reassurance that my partner loves me*', '*I set frustrated if my romantic partner is not available when I need him/her*'. After developing the initial scale, we conducted pre-survey and distributed questionnaires to three undergraduate students, three master students and two PhD candidates who were accustomed to using mobile social media and are in love (unmarried) and asked them to give feedback on the linguistic expressions (concise, unambiguous, etc.) and meanings of the items in the questionnaire. We further revised the questionnaire items according to their feedbacks to form the final FoMO measurement scale, as shown in Table 1.

Table 1. FoMO measurement scale

<i>Dimension</i>	<i>Item questions</i>
Behavioural manifestations	When mobile social media displays a message reminder about the person I care about, my heart beats faster.
	Even if I don't use social media to chat with others for a long time or check the updates on it, I can be in normal state.
	Sometimes if not chatting or browsing on social media, I don't know what I should do.
	If I talk to my romantic partner, at night and he/she suddenly stops chatting, it will be difficult for me to sleep.
	Sometimes I have nightmares about missing important information on mobile social media.
	I often chat with friends on mobile social media when talking to my romantic partner.
	When there is news about my romantic partner on social media, I will immediately notice.
Emotional manifestations	I always check mobile social media from time to time to avoid missing news updates.
	When I see others are happy when using social media and I'm not there, I'll feel lost.
	I'll be nervous and worried if I miss a call appointed on a mobile social media before.
	I worry when I miss some important news on mobile social media.
	I will be upset if my romantic partner does not give me a response or a like on social media.
Cognitive manifestations	If I am in a " disconnected state", I can't endure it.
	If I fail to respond to some message in time, I will be afraid of being misunderstood by my romantic partner.
	I will spend a lot of efforts and time on browsing news about other people on mobile social media, which makes me feel fatigue.
	I hope to learn more about others through mobile social media.
	Because I often hang around on mobile social media, so it's hard for me to concentrate on other things.
	I am sensitive to whether my romantic partner can respond to me in time.

Sample and scoring method description

The formal questionnaire survey was conducted that both online and offline. The survey time is from December 10 to December 25, 2017. The subjects of the questionnaire are post-90s mobile social media users who are in love for at least one year and unmarried. Online questionnaires were distributed mainly by sending questionnaires to college students in a metropolitan university in China. It ensured actual subjects met the requirement of the target group. We distributed paper-based questionnaires to students at the same university (including undergraduate and graduate students) who are accustomed to using mobile social media and are in love and unmarried. \$5 rewards were given to each of those who participated in this survey.

We collected 312 questionnaires, including 259 online ones, and 53 offline ones totally. 38 questionnaires with missing data were excluded, and 274 valid questionnaires were obtained. In order to better carry out data analysis, we re-encoded the data of number 10, 26, 29, 31, 32, 34, 35 reverse-scoring items are re-encoded; 1 was encoded into 7, 2 into 6, 3 into 5, 4 remained unchanged. Among the subjects, 133 are males and 141 are females. 23% of subjects' age is within 18-20 years old. 36% within 20-23 years old. 41% is within 23-25 years old. The rest are older than 25 years old.

Reliability test

In order to analyze the reliability of the data of this survey, a reliability analysis was conducted on 274 valid questionnaires collected. We used Cronbach's alpha coefficients to test the internal reliability of the scale. The data showed that the Cronbach's alpha coefficient of the surveyed respondent's FoMO measurement scale and the romantic relationship measurement scale was 0.8, and the Cronbach's alpha value based on the standardized term was 0.777, both of which were higher. Therefore, it is inferred that the reliability of this questionnaire is good and has a high internal consistency.

Results

Establishment of multiple linear regression model

In order to study the influence of FoMO on post-90s generation's romantic relationship, we classified FoMO into three categories: emotional manifestation, cognitive manifestation and behavioural manifestation, and used them as independent variables. Then we used a romantic relationship as a dependent variable to perform multiple linear regression analysis. The control variables of sex, age and education were put into the regression equation, and the model was established as following:

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \beta_4 * X_4 + \beta_5 * X_5 + \beta_6 * X_6 + \epsilon \quad (1)$$

Among them, Y represents romantic relationship, X1, X2, X3, X4, X5, X6 respectively represent behavioural, emotional, and cognitive manifestation, age, gender, and educational background β_0 indicates the intercept term, β_1 , β_2 , β_3 , β_4 , β_5 , β_6 are the regression coefficients of behavioural, emotional, cognitive manifestation, age, gender, and educational background, respectively, represents a random error term.

The results of multiple linear regression model

Table 3. Model summary

<i>model</i>	<i>R</i>	<i>R²</i>	<i>Adjust R²</i>	<i>Standard estimated error</i>
1	0.481 ^a	0.231	0.207	0.50771

a. Predictors: (constant) behavioural manifestation of FoMO, emotional manifestation of FoMO, cognitive manifestation of FoMO

Table 4. ANOVA

<i>model</i>	<i>Sum of square</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
Return	14.632	6	2.439	9.461	0.000 ^a
1 Residual	48.719	189	0.258		
Total	65.351	195			

a. Predictors: (constant), behavioural manifestation of FoMO, emotional manifestation of FoMO, cognitive manifestation of FoMO, age, gender, education. b. Dependent variable: romantic relationship

Table 5. Coefficient

<i>Model</i>	<i>B</i>	<i>Standard error</i>	<i>Trial version</i>	<i>t</i>	<i>Sig.</i>
(constant)	2.653	0.460		7.368	0.000
Behavioural manifestation	-0.273	0.058	0.376	4.744	0.000
Emotional manifestation	-0.033	0.043	0.056	0.753	0.452
Cognitive manifestation	-0.059	0.049	0.103	1.223	0.223
Age	-0.012	0.009	0.081	1.247	0.214
Gender	-0.083	0.076	0.071	1.091	0.277
Education	0.062	0.069	-0.058	-0.893	0.373

a. Dependent variable: Romantic relationship

The results of linear regression analysis are shown in Table 3-5. The model adjusted R² = 0.231, indicating that the model has good, goodness-of-fit; the result of F-test of the overall coefficient of the regression model is 9.461 (F=9.461), p=0.000 < 0.05, indicating the effect of overall linear regression of the model is significant. Based on the Table5, the regression model results are established as follows:

$$Y = 2.653 - 0.273 * X1 - 0.033 * X2 - 0.059 * X3 - 0.012 * X4 - 0.083 * X5 + 0.062 * X6 \quad (2)$$

We learn from the results of regression analysis that the regression coefficients of emotional manifestation, cognitive manifestation of FoMO are not significant, indicating that in the regression analysis model, these two independent variables do not have significant the effect on the dependent

variable; The p value of behavioural manifestation of FoMO is $0.000 < 0.05$, which indicates that it is significant. In addition, the p values of gender, age, and education were all greater than 0.05, indicating that the influence of control variables on the dependent variable was not significant.

The above results show that both H1 and H2 are rejected, and that H3 is supported. This means that the changes in the cognition and emotional dimensions of users caused by FoMO do not have significant negative impacts on the intimate relationship, whereas the behavioural changes caused by the user's FoMO have a significant negative impact on the post-90s generation's group romantic relationship.

Discussion

The effect of behavioural anxiety on romantic relationship

The effect of behavioural manifestation of FoMO on the romantic relationship is mainly demonstrated in the fact that when in face-to-face contact with their lover, users can't focus their attention on their partners very well, which leads them to be often distracted. From time to time, they will carry out non-attachment activities such as updating WeChat Moments dynamics or responding to other friends' messages, which makes their partners need to compete with mobile social media for attention resources (Wolniewicz, et al, 2018). In such situation, users with FoMO do not have enough amount of common disposable time to nurture their romantic relationship. At the same time, FoMO can restrain the individual's self-expression and behaviour feedback ability. As for self-expression ability, users want to be in constant connection with others through mobile social media (Zhang, et al., 2020). This long-term compulsive behaviour changes the way in which they presented themselves in real-life romantic relationships. They are used to using text, images and symbols to show themselves, and feel uncomfortable with face-to-face communication. For example, they may display a certain degree of avoidance or restraint and have communication difficulties when developing intimate relationships with lovers. In romantic relationships, behavioural feedback ability between lovers also influences the trend of love relationship. Behavioural manifestation of FoMO makes the user's response to the lover's intention slow down, in real-time face-to-face communication process, they may not be able to make appropriate behavioural feedback to the partner's requests or hints, such as rarely asking questions to lovers, not fully discussing topics raised by lovers, etc., which brings crisis to the maintenance of romantic relationship.

In addition, since users are driven by FoMO, they display compulsive behaviour tendency when using mobile social media (Cao, et al., 2001). This compulsive behaviour will result in the loss of trust and the growth of uncertainty between lovers, which to some extent may undermine the stability of the romantic relationship. It actually does harm to fostering a good relationship of love. Therefore, behavioural manifestation of FoMO can lower the lover's assessment of the availability and responsibility of the partner, which affects the stability of the relationship.

The influences of emotional and cognitive manifestations of FoMO on romantic relationship

Our research showed that the emotional¹ and cognitive manifestations of FoMO of post-90s mobile users do not have significant negative impacts on their romantic relationship. It is important to investigate why this anomalous phenomenon exists and the mechanism behind it. Dykas (2009) pointed out that individual understanding and evaluation of an intimate relationship are a kind of subjective conception and feeling, and it is a synthesis of cognitive information and emotional information. However, cognitive and emotional strategies adopted by individuals influence the trend of romantic relationship (Dykas and Cassidy, 2011). The cognitive and emotional states of FoMO make the user perceive anxiety and potential psychological danger. Thus this will cause the attachment system to be activated automatically (Wang, et al., 2005). Relying on the attachment system, individuals will adopt certain emotions or cognitive strategies related to attachment to avoid certain risks in the relationship.

In the romantic relationship, individuals are subjectively inclined to take measures to control and manage their emotions, thus changing their own responses that are expressed in the forms of psychological activities, psychological experiences and explicit behaviours. At the same time, by affecting the emergence and expression of emotions, people can weaken, reduce or conceal negative emotions or avoid negative emotions through situation selection and situation modification (Xiong, et al., 2018). In addition, the attachment system matters. It is a safe emotional regulation system. If being activated by negative emotions or cognitive incentives, the system will guide an individual to maintain and develop a romantic relationship that helps him cope with the negative situation. The main purpose of attachment behaviour is to rebuild the sense of psychological security, which can be achieved by communication or seeking support from attachment objects (Li, 2016). Thus, negative emotional state of FoMO may prompt individuals to seek help from attachment objects, which reduces its negative effects on romantic relationship.

Similarly, in the special context of a romantic relationship, the change of cognition caused by FoMO is more like a kind of 'state' cognitive anxiety, which can be alleviated by the cognitive re-evaluation strategy adopted by individuals. Attachment behaviour is a kind of behaviour that individuals actively mobilize energy and resources to solve psychological or physiological oppression when they encounter frustration and stress in the love context. It is shown in the cognitive efforts to seek psychological help and support from the attachment object (Li, 2009). Due to these cognitive efforts, the cognitive manifestation of FoMO may be eliminated in the interaction with the lover, and the accompanied bias may be corrected. Therefore, cognitive manifestation of FoMO does not have a significant negative impact on romantic relationships. It is important to bear in mind that our study's data was collected a couple of years back, which was before the COVID-19 epidemic broke out. During the COVID-19 epidemic period, misinformation and disinformation were disseminated rapidly on social media, resulting in low information quality. Infodemic emerged. People spend more time and effort on accessing and evaluating pandemic information. They conduct such actions more frequently. It further causes their FoMO. The influence of FoMO on young people's romantic relationships and other relationships may become more significant. Our results, therefore, need to be interpreted with caution. Further research should be done to investigate how the relationships between FoMO and intimate relationships change during public health emergencies. It is also necessary to address other related questions about the effects of people's cyber-psychological problems like cyberchondria on social relationships in such health crisis context.

Conclusions and limitations

This paper analyzed the impact of information behaviour driven by FoMO on romantic relationship of post-90s mobile social media users from the perspectives of social psychology. It abandoned the previous research perspective of treating FoMO as a psychological disorder. The empirical results found that in the context of mobile social media, behavioural manifestation of FoMO has a significant negative impact on the post-90s generation's romantic relationship, while the emotional and cognitive manifestations have little effects on that relationship. This indicates that in the process of using social media driven by FoMO, the post-90s mobile users often check the information in device frequently and subconsciously, resulting in excessive information behaviours such as browsing, interaction and sharing, which does harm to the development of romantic relationship. The emotional and cognitive states users present on the psychological development does not affect the direction of the relationship, which implies to some degree that the view of simply treating the anxiety disorder FoMO as a psychological symptom is debatable. FoMO has more negative effects on the love, life and work of the post-90s generation through compulsive and anxious information behaviour.

This study also has some limitations. There is still debate in the academic circle about whether FoMO is a potential behavioural anxiety or a psychological anxiety. It is necessary to carry out more relevant studies

to further explore the essentials connotation of FoMO and its impact on interpersonal communication. It is also valuable to include other age groups in the study or looking at those who are single and retroactively think about previous relationships as far as FoMO is concerned. In addition, current study only examined the romantic relationships among young Chinese people as the dependent variable in the FoMO context. It is a special relationship. An issue that was not addressed was whether the relationships between FoMO manifestations and romantic relationships could be generalized into interpersonal communication in social media. It would be interesting to assess the effects of FoMO on more diversified relationships such as parent-child relationships, teacher-student relationships and employee-employer relationships in the workplace.

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