

Whether to Living in the Moment: The Mediating Role of Time Perspective

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Abstract: As technology advances, social media has become an integral part of people's lives. Meanwhile, individuals' lifestyles have changed dramatically today when COVID-19 is rampant. In the epidemic control, home isolation has become the norm in China. The current study explored the mediating role of time perspective (TP) between social media use and internalizing symptoms during the pandemic. In this study, we used Swedish Zimbardo Time Perspective Inventory (S-ZTPI), Self-Rating Anxiety Scale (SAS), Center for Epidemiologic Studies Depression Scale (CES-D) and other correlation questionnaires. Participants (n=503) were asked to finish a series of tests. The findings suggest a link between problematic social media usage (PSMU), TP, and depression and anxiety. The link between PSMU and Internalizing symptoms is totally mediated by TP.

Keywords: time perspective, COVID-19, problematic social media use, depression, anxiety

1. Introduction

As the Internet grows in popularity, new technologies (such as smartphones, laptop computers, and tablets) enter people's lives. Individuals are increasingly spending more time and attention on their cell phones, with social media accounting for a big percentage of it[1]. Individuals have more time to use social media during COVID-19, which can make them more inclined to rely on social media to acquire information, maintain relationships, and so on[2]. Excessive social media use may raise the probability of social media addiction. Several studies have identified a significant correlation between depression and use of social media[3]. The potential addiction appears to be linked to the mental state switch and behavioral effects[4, 5]. Given the unique circumstances of the COVID-19 outbreak, people's lives must have been impacted to diverse degrees in various ways. As a result, mental state changes are unavoidable. Meanwhile, the impact of time perspective on mental state is clear. Individuals tend to have varied life orientations based on their time-personality type[6]. Therefore, we anticipate that the time perspective will play a role in mediating the connection between problematic social media use and internalizing symptoms.

2. Literature Review

Social media emerged as a consequence of modern technology's fast advancement. Social media, websites, and programs used for social networking. In comparison to the mass media, social networking sites have been defined as "a networked communication platform. That means the general population can be both audiences and content creators. Social media users have more freedom to join in social networks as well as share or create their own ideas, which draws a large number of people to participate in social networks. As a result, the predominance of social media use gives individuals with easy and diverse access to a variety of elements, such as communicating, learning, and cooperating[7]. According to empirical research, social media has evolved into a popular pastime[8-10].

As social media rises in popularity, the phenomena of spending too much time on social networking sites has become more common, and such uncontrolled social media usage behavior is thought to have negative implications that could lead to a potential addiction [11-13]. Although the term "addiction" has become an implicit term and has even gotten slightly overused in real life, the definition of addiction remains ambiguous. Because the newest (fifth) edition of the Diagnostic and Statistical Manual of Mental Diseases does not include a notion termed "addiction," relevant researchers and professionals tend to identify addiction as substance misuse and substance dependence to substitute mental disorders[14, 15]. In the meanwhile, there exist various synonyms of social media addiction which is another factor that contributes to the inconsistency of empirical studies, such as Mobile SNS Addiction[16], Social Media Disorder[17], Problematic Mobile Phone Use [15], Facebook addition[18], Twitter addiction[19].

A comprehensive diagnosis is difficult to establish due to the unclear concept of social networking addiction. Social media addiction can be explained in a somewhat objective, accurate, and dependable manner by building theoretical models. According to the biopsychosocial model[20], a variety of addiction symptoms can indicate problematic social media use, including: mood modification, salience, tolerance, withdrawal symptoms, conflict and relapse[21]. More research is needed to confirm that irrational social media use and excessive attention to social media information is an addictive habit[22, 23]. And the addiction has been proven to be associated with participants' mental health and behavioral outcomes[5] in diverse aspects, including emotion, relationship, health and performance problems[13, 24-26]. We hypothesized that social network addiction may have a similar effect, leading to increased depression and anxiety.

Social media can provide a multiplicity of times through rewriting the past and creating presents [27, 28], which may be influenced by attitudes and cognition towards time. Individuals have relatively consistent sentiments toward various time ranges. These attitudes might be either negative or favorable. Time perspective (TP) is a person's full cognitive of the mental time frame in which they organize their cohesive life events into past, present, and future components. Zimbardo distinguishes various time personalities as Past Positive (PP), Past Negative (PN), Present Hedonist (PH), Present Fatalistic (PF), and Future Positive (FP) (F). Individuals who have a balanced time perspective orientation may be capable of changing their time frame and mental state more easily when faced with adversity[29]. TP is one of the most important factors which influence individuals in judgments, decisions and actions. Either coming from the past or the future, the cognitive process of perceiving time has an impact on individuals' current situations through the cognitive temporal bias towards different periods[6]. Individuals with future orientation always be considered as the ones with positive personalities, while those with dominant present orientation more likely to have negative life visions[30-36]. It is worth noting that both past negative and present fatalistic influences lead to a rise in problematic social media usage behavior among teenagers[37]. Therefore,

based on previous studies, we hypothesized that the time perspective moderated the effect of social network on internalized symptoms.

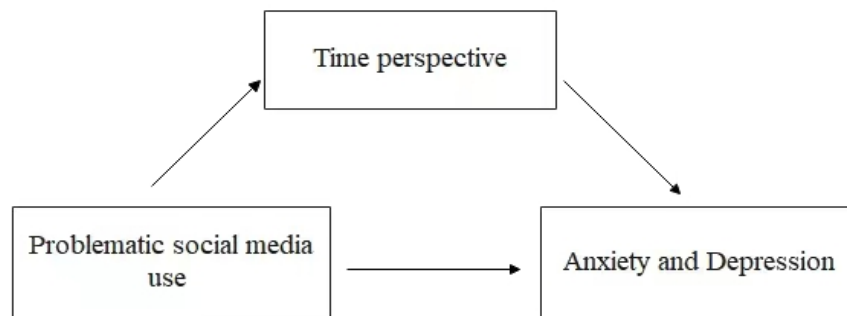


Figure 1: Hypothesis correlations among variables.

3. Methodology

3.1. Participants and Procedure

Data were obtained from 503 social media users (64.6% of them were female) ranging in age from 16 to 50 years old ($M=29.74$, $SD=6.792$). According to the demographic statistics, the sample consists of students (16.3%), full-time employees (74.4%), temporary workers (6.8%), separated or retired people (1.4%), those who are not now working (0.4%), and others (0.8%). 26.6% of them reside in the countryside, while 73.4% live in cities. Specifically, 86.7% of people involved in COVID-19 outbreak prevention and control (isolation, home office, prohibition of going out, etc).

The participants in this study were chosen at random using the internet. Participants were instructed to complete the whole questionnaire anonymously based on their current position. The whole research questionnaire took 5-10 minutes to complete.

3.2. Instruments

The problematic mobile social media use assessment questionnaire includes 20 elements that can be classified into five categories: increased stickiness, physical impairment, missing anxiety, cognitive failure, and guilt[38]. The questionnaire, with reasonable reliability and validity characteristics, can effectively measure teenagers' problematic mobile social media use. Participants are asked to respond to questions about possible phenomena during social media use based on their own experiences. The following criteria are included in the answer: "1" = not at all, "5" = all. Because of the generality of the questionnaire questions and the ubiquity of social media use, we employ the questionnaire in the current study to measure social media usage of users of all ages. Cronbach's α for the scale in this study is 0.957.

The Self-Rating Anxiety Scale (SAS) has 20 items that represent an individual's subjective level of anxiety. The SAS assesses the frequency of symptoms defined by the items using a 4-point scale: "1" no or little time and "4" most or all of the time. It is a pretty straightforward clinical instrument for examining patients' subjective symptoms, from the form of the scale creation to the specific assessment procedures. Because anxiety is one of the most frequent mood disorders in counseling clinics, the SAS has grown in popularity in recent years as a tool for assessing anxiety symptoms. Cronbach's α for the scale in this study is 0.936.

Center for Epidemiologic Studies Depression Scale (CES-D) was created to assess present depressive symptoms, with a focus on depressed affect or mood, and was intended to be used for comparing cross-sectional data at different time points. The GES-D contains 20 items that represent

the major elements of depressed symptoms and reflect depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor slowness, loss of appetite, and sleep disturbance. Subjects were asked to report the frequency of symptoms in the previous week when filling out the form. Answers include: "Occasional or none (less than 1 day)," "occasionally (1-2 days)," "often or half the time (3-4 days)," and "most of the time or continuously (5-7 days)". The overall score ranges from 0 to 60, with higher numbers suggesting a greater likelihood of depression. Cronbach's α for the scale is 0.950.

Swedish Zimbardo Time Perspective Inventory (S-ZTPI) develops from the original version ZTPI [29, 39]. It contains 64 items (eight more than ZTPI), which is suitable for changing situations. The items include Past Positive (PP, n=9), Past Negative (PN, n=10), Present Hedonistic (PH, n=15), Present Fatalistic (PF, n=9), Future Positive (FP, n=11), Future Negative (FN, n=10). Differ from the original one, Future (F, n=13) items transferred to new subscales Future Negative (FN) or Future Positive (FP). Respondents are asked to honestly answer the questions in S-ZTPI and the answer includes following criteria: "1" = very uncharacteristic and "5" = very characteristic. In the present research, the Cronbach's α of the scale is 0.911.

Deviation from the balanced time perspective Extend (DBTP-E) were used to assess time perspective balance to indicates the distance between the subject TP and the idealized balanced TP [40]. The higher the score, the more unbalanced TP is. The specific formula is as follows:

$$\sqrt{(oPN - ePN)^2 + (oPP - ePP)^2 + (oPF - ePF)^2 + (oPH - ePH)^2 + (oFP - eFP)^2 + (oFN - eFN)^2} \quad (1)$$

O = observation score and E = optimal critical value. In this study, ePN、ePP、ePF、ePH、eFP、 and eFN are equal to 1.95、4.60、1.50、3.90、4.00 and 2.1, respectively.

3.3. Statistical Analysis

In this study, SPSS25.0 was used for descriptive analysis of demographics and correlation analysis between variables. Then the PROCESS program item is used to make a regression analysis of the mediating variables.

4. Results

According to the results, PSMU is positively correlated with Depression and Anxiety ($r=0.498$, $p<0.01$; $r=0.476$, $p <0.01$), and PSMU is also positively correlated with DBTP-E ($r=0.745$, $p < 0.01$). Meanwhile, DBTP-E is positively correlated with Depression and Anxiety ($r=0.693$, $p <0.01$; $r=0.687$, $p <0.01$).

Table 1: The role of DBTP-E in moderating the link between PSMU and Depression.

	DBTP-E		Depression		Depression	
	t	p	t	p	t	p
PSMU	25.016	0.000	12.847	0.000	-0.874	0.383
DBTP-E					15.001	0.000
R ²	0.555		0.248		0.481	
F	625.801		165.050		231.947	

The mediating effect of DBTP-E on the relationship between PMSU and Internalizing symptoms are observed in Table 1 and Table 2. The result demonstrated that DBTP-E significantly predicts PMSU and Anxiety and Depression. In the case of adding DBTP-E, PMSU's prediction for Anxiety and Depression is not significant, while DBTP-E's prediction for Anxiety and Depression is significant, so DBTP-E fully mediates the relationship between PMSU and Internalizing symptoms.

Table 2: The role of DBTP-E in moderating the link between PMSU and Anxiety.

	DBTP-E		Anxiety		Anxiety	
	t	p	t	p	t	p
PSMU	25.016	0.000	12.112	0.000	-1.669	0.096
DBTP-E					15.379	0.000
R ²	0.555		0.227		0.475	
F	625.801		146.704		226.095	

5. Discussion

The current results suggest that Problematic Mobile Social Media Usage and Deviation from The Balanced Time Perspective Extend positively predict anxiety and depression. In other words, excessive use of social media and imbalanced time perspective have been linked to internalizing symptoms and previous studies have proved this [4, 21]. Further analysis found that DBTP-E fully mediated the relationship between problematic social media use and anxiety and depression. DBTP-E means that time-frame conversion is impaired. According to Zimbardo's theory of time perspective, the idealized mental framework "balanced time orientation" (more past PP and FP, less PF and PN, medium PH) allows individuals to get better and more flexible mental switch among various time personalities, which is beneficial to individual physical and mental development and shape the ideal social function.

Nevertheless, PMSU reflects inappropriate time management tendencies and overindulgence in the present. It may change individuals' own experience and cognition of time, cause the failure of reasonable time framework construction. When TP is more unbalanced, which means being unable to switch time frames to view negative events, individuals are more likely to be immersed in a certain time perspective, then experience more negative cognitive emotions and increase worries, anxiety and depression toward future. It should not be ignored that our study was conducted during the COVID-19 pandemic, and inappropriate use of social media may have been caused by quarantine measures at a particular time, such as home isolation and inability to communicate with others face to face. So PMSU may be a pseudo-addictive behavior, and time perception may play a more important role in mental health. Future research should further explore the role of temporal insight in problematic use of social media in different contexts.

6. Conclusion

Due to the contingency and particularity of pandemic outbreaks, we know little about individuals' mental state switches caused by time personality changing during the special period. The present research is trying to explore the mediating effect of TP between problematic social media use and individuals' anxiety and depression by online tests. In conclusion, the result shows that remarkable correlation among problematic social media use, TP and depression and anxiety. It is hoped that the present research can serve as an impetus to explore the role of TP and a foundation on the future research on mental health in epidemics.

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