ORIGINAL RESEARCH

Adapting to Lockdown: Exploring Stress Coping Strategies on Short Video Social Media During the COVID-19 Pandemic

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Introduction: The study addresses a gap in research on media use during the COVID-19 pandemic, focusing on the overlooked role of short video social media platforms in stress management. It builds on transactional stress model and coping flexibility to advance the understanding of the strategy-situation fit, particularly the alignment of coping strategies with platform affordances.

Methods: Our study investigated the detailed use of short video platforms and coping strategies during the pandemic lockdown through an online survey of 1569 respondents conducted immediately after the lockdown. We characterized lockdown duration as a situational stressor attribute and explored variations in the coping process. Assessing changes in user behavior across the top four Chinese short video platforms, we examined anxiety induced by lockdown and the use of problem-focused and emotion-focused coping strategies.

Results: Significant changes in user behavior in response to lockdown-induced stress were observed. Structural model analyses reveal that people employed both coping strategies to manage heightened anxiety, primarily through increased viewing behavior over interaction behavior.

Discussion: The findings underscore the positive implications of short video platforms on individual well-being. This study argues for a deeper research focus on coping flexibility within the realm of social media, accompanied by a comprehensive assessment of platform user behavior. Future research should also consider the influence of algorithms on platform functionality.

Keywords: short video platform, stress management, coping strategies, lockdown, coping flexibility

Introduction

Social media has profoundly transformed interpersonal dynamics. There have been increased concerns about its impact on individual mental health, a matter supported by mixed shreds of evidence. On one hand, social media can serve as a supportive mechanism, mitigating feelings of loneliness by providing social connections.[1–3] On the other hand, its use can also contribute to anxiety and depression, as seen in cases like "Facebook depression", exacerbating preexisting mental health conditions due to social comparison and information overload.[4,5]

The social distancing policy in response to the COVID-19 pandemic has elevated the indispensability of social media. Previous study presents a comprehensive picture of mental health challenges and negative psychological consequences of the pandemic.[6–9] Throughout the pandemic, there has been a substantial surge in social media use. The majority of studies analyzing general social media use indicate a connection between increased social media use and higher levels of stress and loneliness.[10–12] This aligns with prior evidence that suggests social media use leads to depressive symptoms, while deactivation from social media has been shown to improve subjective well-being.[13,14]

Nevertheless, researchers have also presented evidence challenging the assumption of a one-sided causal relationship.[15,16] Instead, a bidirectional relationship could exist. For example, a longitudinal study found that adolescent girls who experience depressive symptoms tend to use more social media (rather than vice versa).[17] Additionally, there is also the possibility of no

effect. A population-based study showed that when controlling for prior problems and loneliness, social media use does not predict mental health and sleep problems in the short or long term.[18] Notably, these mixed results were derived from various situational factors (eg, problematic use) and individual differences (eg, different levels of vulnerability).

We focus on situations when individuals face significant external stressors, such as a crisis event, when individuals often employ protective measures and different coping strategies to manage anxiety and fear.[19] Research has shown that engaging in coping mechanisms can enhance resilience, moderate perceived losses, and promote adaptation in the face of disasters.[20–22] Consequently, if people actively turn to social media as a coping mechanism during crisis events, it offers an alternative explanation for the observed increase in social media use associated with heightened anxiety during such situations.

Several studies have examined the use of media as coping tools or strategies to manage stress.[23] However, many empirical studies have examined social media coping strategies but have neglected to include social media use behaviors.[24–26] As noted by Wolfer and Schneider, the current field requires more research to provide a nuanced understanding of various media types and stressors involved, particularly the need to include media functions and media characteristics in the analyses.[27]

The nature of social media use itself holds significance. Much evidence demonstrates that the type of use is a more important indicator than the frequency of use.[28] Notably, direct social interaction could predict positive effects, whereas following rumors online could increase anxiety. The platform's distinct features also play a significant role.[2,29] Take *Instagram*, for example, which is designed for sharing photos and short videos with a variety of enhancing filters. Its features tend to amplify the culture of social comparison, leading to adverse psychological outcomes and poor appearance-related self-perception.[30] Thus, it is necessary to have a nuanced understanding of the intricate dynamics between social media engagement and mental health outcomes with consideration of the distinct features of social media platforms.

We concentrate on short video platforms, which have emerged as prominent entities in the latest iteration of global social media. Like other social media platforms, it provides online interactions in which people can create and share content and exchange information and ideas. Nevertheless, their creative content, facilitated by built-in video-creating functions and robust recommendation algorithms that increase users' engagement with trending content, has distinguished them from traditional platforms. *TikTok*, for instance, overtook *Facebook* as the world's most downloaded application. In China, short video platforms have gained immense popularity, with over 934 million users, accounting for 90.5% of the total netizens. While some recent research has explored the impact of short video platform use on mental health, mainly focusing on negative effects such as an association between short video platform use and depression and social anxiety.[31,32] The positive aspects of these platforms have often been overlooked. Short video platforms can also serve as buffers against stress, especially for young individuals. For example, during the pandemic, therapeutic content on *TikTok* saw significant growth, providing an essential channel for users to understand themselves and seek support in managing their mental health and well-being.[33]

In the current research, we conducted a survey with a large sample of short video social media platform users in the immediate aftermath of the recent lockdown of COVID-19 in China. We assessed changes in user behaviors across the top four Chinese short video social media platforms, namely *Douyin, Xiaohongshu, Bilibili*, and *Kuaishou*, and examined the association between the changes in user behavior patterns and psychological effects caused by the lockdown. In addition, to comprehensively understand the coping process, we investigated the coping strategies and situations of stressors during the coping process.

The current research contributes to the existing literature in three ways. Firstly, our objective was to understand the user behavior patterns of short video platforms during the COVID-19 pandemic, with a particular focus on the changes observed during the lockdown period. In the present social media reality, users value the distinct features of each platform, and their motivations can vary widely depending on content and technological affordances.[31,34] While it is widely acknowledged that general social media use increased during the pandemic, more attention has been given to the significance of instant communication functions for maintaining social connections during periods of social distancing, which are not prominent features of short video platforms.[35] However, given that many people now use multiple social media platforms simultaneously, it raises the question of how the pandemic lockdown impacted the user behaviors of short video platforms. Since there is no previous research in this area, our research aims to explore whether short video platforms can be utilized as coping tools alongside other social media platforms.

Secondly, this research seeks to bridge the gaps in fragmented and disconnected research perspectives within the field of media coping.[27] We adopt the transactional stress model as the theoretical framework, examining the dynamic coping process between individuals and their environments.[20] According to the theory, our study is structured from the induced anxiety caused by environmental stimuli (ie, the pandemic lockdown), the coping strategies individuals employ to manage the situation, to the subsequent behavioral changes such as increased social media use. Instead of assessing the coping effectiveness, we aim to construct a comprehensive stress and coping model directly linked to user behavior on short video platforms. Furthermore, our study contributes to the existing literature by addressing the gap in understanding the situational characteristics of stressors and their impact on the coping process.[36] To fill this gap, we consider the duration of the lockdown as a critical variable. This allows us to identify variations in stress levels and associated coping behaviors at different time intervals during the pandemic.

Lastly, we emphasize the importance of a detailed approach to measuring social media use in our research design. The measurement of social media use varies across different studies in examining its coping effects during the pandemic. For example, some studies assessed the media exposure ranging from books, TV to social media use,[37,38] while others examined the psychological effects of social media use without direct assessment of user behavior.[39] Moreover, social media platforms often serve multiple functions. For instance, platforms like *WeChat* offer instant messaging and social networking capabilities (eg, posting, following, and likes), each fulfilling different needs of the users.[40] Our research aims to address this by focusing on user behavior on short video platforms, including viewing and interaction with other users. We acknowledge that behaviors such as uploading content or hosting live streaming may be significantly different from the perspective of the majority audience/viewers.[41] Therefore, by examining viewing behaviors across various types of content and interaction behaviors, our research seeks to provide a comprehensive understanding of coping behaviors within this specific context.

Literature Review

According to Lazarus and Folkman's theory of stress appraisal and coping, people constantly appraise stimuli within their environment.[20] An event appraised as stressful, the primary appraisal prompts coping mechanisms that require efforts to manage emotion or resolve the event as the secondary appraisal. Therefore, stress and coping can only be understood by considering the interaction between the individual and the situation.

Coping is defined as the cognitive and behavioral efforts undertaken to manage the stressful person-environment transaction. Problem-focused coping (PFC) involves attempts to alter the stressful person-situation interaction, such as seeking further information. Emotion-focused coping (EFC), on the other hand, is directed at managing the emotional response to the stressful situation rather than directly addressing the stressor itself, often involving distraction. PFC is commonly seen as an effective coping strategy as it addresses the underlying causes of stress and aims to find solutions, while EFC, which involves disengagement and denial, is often considered maladaptive as it fails to solve the actual problem effectively.[42] In general, although PFC tends to predominate when individuals believe they can take constructive action, EFC tends to prevail when stressors must be endured. Most stressors elicit a combination of both coping strategies, with no single strategy prevailing across all situations.[43] People often utilize both strategies simultaneously, and the relative emphasis on each approach is influenced by contextual factors and the intensity of the stressor they are facing.[44]

Considerable research efforts have been dedicated to understanding coping strategies and their effects. However, inconsistent findings have emerged, suggesting that the same coping strategy can yield distinct outcomes in varying situations.[45–47] A more complete understanding of coping may require a microanalysis of the processes of coping in which individuals may employ various coping strategies in response to stressful environments.

Despite the extensive literature on coping, coping flexibility has received relatively limited research attention.[48] Coping flexibility, grounded in the social-cognitive approach to personality, pertains to individuals' ability to discern differences among various situations and to adaptively deploy diverse coping strategies in accordance with changing situational constraints.[49] A major conceptualization of coping flexibility is strategy-situation fit, which emphasizes the interplay between strategy deployment and the environment and is largely derived from person-situation interactionist theories.[50] A meta-analysis has revealed that, when compared to other conceptualizations, strategy-situation fit as a coping flexibility construct exhibits a more stronger and moderated effect size in in influencing psychological adjustment effectiveness.[48]

In our research context, we adopt and expand upon this concept by incorporating coping behavior, specifically user behaviors, on short video platforms. Firstly, we emphasize the significance of a strategy-platform fit. The platform pertains to the affordances of the platform, which denote the range of possibilities offered by communication technologies for individuals to engage in specific actions.[51] When individuals turn to social media platforms as coping mechanisms, the effectiveness of their coping strategies should align with the unique affordances offered by the platforms. Notably, distinct platforms yield divergent psychological outcomes based on variations in their features. In a cross-platform research including *Facebook, Instagram, Twitter*, and *TikTok*, researchers discovered that the amount of time users spent on different social media platforms mediated the relationship between user behavior and well-being, which the effects were more pronounced on *Twitter* and *TikTok*.[52] Another study examined excessive user behavior across five platforms-*Facebook, Instagram, Snapchat, TikTok*, and *Twitter* – it was observed that different platforms were associated with different types of social comparisons, which, in turn, further predicted user behaviors.[53]

Shot video platforms are distinguishable by video content, usually from fifteen seconds to five minutes, and with powerful recommendation algorithms. The content ranges from various aspects of social life, such as beauty, food, pets, education, news, life skills, and social events, providing a blend of entertainment and information.[54–56] Prolific media consumption can create stimuli to place the audience in a specific situation, which triggers empathic interaction under different cognitive and emotional states.[57,58] Moreover, short video platforms are featured with content curation, in which the algorithm garners all posts but only presents a selection of curated content to the user, which not only provides many conveniences for users through tailoring but also creates more traffic in shorter intervals of time. Accordingly, content selection is not only predicted by self-directed motivations but also guided by platform algorithms, while most people cannot discern the differences between underlying mechanisms.

Given the features of short video platforms, our study centers on the selection of content on these platforms. The content individuals choose to engage with can either complement or hinder their coping efforts. This fit between the coping strategy employed and the platform's content offerings plays a pivotal role in shaping the overall coping experience on these platforms. Additionally, we notice that the content distribution on short video platforms is heavily influenced by algorithms, in addition to users socializing behaviors.[59] This dynamic interplay between algorithms, user behavior, and content distribution raises intriguing questions about how coping strategies and content selection interact within this context, a direction of potential the current study seeks to explore.

Secondly, we underscore the importance of a strategy-situation fit, which is contingent upon the characteristics of the specific situation. In the current research context, one pertinent situational indicator could be the duration of lockdowns. The prolonged nature of lockdowns may not only affect the first appraisal in terms of the stress level but also may necessitate different coping strategies or adaptations. While consistent findings indicate that social isolation resulting from lockdown negatively affects mental well-being, relatively few studies looked into the features of lockdown. In a review, only three studies out of 24 considered the quarantine length as a predictor of mental health.[60] A longitudinal study in China assessed participants during two waves - during the initial outbreak and four weeks later.[61] The findings showed that psychological distress did not change between the first and the second wave, whereas post-traumatic disorder decreased over time. In contrast, another two studies conducted in Italy found that the longer the isolation, the worse the mental health (eg, depression).[62] Indeed, no study has included the duration of lockdowns in the exploration of coping behaviors on social media during the pandemic. Therefore, these divergent findings highlight the need for a more comprehensive understanding of how situational factors impact the coping process.

Current Research

We are interested in understanding the use of short video platforms in coping with the pandemic lockdown. Although the prevalent assumption is that social media usage has grown owing to the pandemic, it is not an assured fact. For example, in response to changes in social media use due to the pandemic, 78.4% of participants reported increased use of video chat, while 64% chose not to use *Twitter*, followed by *Instagram* (43.7%).[63] *Facebook* usage also exhibited a more complicated pattern, with 39.3% mentioning increased use, 37% unchanged, 3.9% decreased use, and 19.7% opting not to use. Considering the competing situations with other social media platforms, short video platforms are more

emphasized content attractions instead of instant communication and news dissemination, the latter two of which are more critical during the lockdown.

First, we ask the question.

RQ1: Do people increase the use of short video social media during the pandemic lockdown?

Second, we explore the coping mechanism of short video social media use during the pandemic lockdown. According to the theory of stress appraisal and coping, coping is conceptualized as a dynamic process that could vary depending on the situational circumstances of the stressors.[36] To establish the complete coping process, we divide the question into three parts:

RQ2a: Is the perceived stress of the pandemic lockdown associated with short video social media use?

RQ2b: Do people engage in coping strategies in short video platform use?

RQ2c: Does the length of the lockdown affect the coping use of short video social media?

The first part of the research question is to clarify that the possible changes in the use of short video platforms are induced by the stressor. The pandemic lockdown may afford individuals with more free time, leading them to seek out additional activities to pass the time. In certain instances, individuals may not perceive the situations as stressors. Hence, the subsequent changes in behaviors, therefore, should not be presumed to be stress-coping practices. Following this rationale, the second part of the research question seeks to determine whether coping mechanisms are involved in the motivations for using short video platforms, shedding light on the strategy-platform fit. We investigate both problem-focused and emotion-focused coping strategies with the consideration of the affordance provided by the short video platforms. Lastly, we test the effects of situational characteristics of stressors, precisely the length of lockdown, to explore the variability in the coping process. We characterize the duration of the lockdown, which affords to identify the stress level and measure associated coping behaviors that take place at different time intervals, providing insight into the strategy-situation fit.

Method

Participants

An online survey was conducted and distributed via social media, including *WeChat* and *Douban*. Participants were recruited through posts on these platforms, employing a convenient sampling approach. Participants were informed about the aim of the study and were asked for their consent. Data collection took place between June 20 and 30, 2022. Many places in China had COVID outbreaks before and during the period of data collection, and varying degrees of lockdown and lockdown regulations were enforced. We intend to assess the general population's stress level in the survey without delving into specific mental health diagnoses. The survey has been reviewed and received approval from the Institutional Review Board (IRB) at SJTU-ICCI. Prior to the survey, participants were provided with a consent form, explaining the purpose and procedures of the research. Participants were assured of the confidentiality of their information, and data was collected solely for research purposes. Once participants willingly provided their consent, the survey commenced.

A total of 3000 questionnaires were distributed, and 1738 responses were returned, representing a response rate of 57.9%. A screen question was applied, and only those who have experienced more than one week of lockdown within the previous three months were eligible for the survey. After eliminating fast responses, and pattern answers, 1569 responses were retained for final analysis (Table 1). The participants in our study represent all 31 provinces, cities, and regions of China, with 13.4% from Guangdong, 12.9% from Beijing, and 10% from Shanghai.

Most participants used multiple video-based social media platforms. 90.8% of participants indicated that they used at least two video-based social media platforms, and 82.3% used three or more platforms. Around 55% of participants used all four major video-based social media platforms in China: *Douyin, Xiaohongshu, Bilibili*, and *Kuaishou*.

Measures

A brief measure, the Generalized Anxiety Disorder Scale (GAD-7), was used to measure psychological responses during the lockdown period.[64] Participants were asked to rate their level of anxiety on a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). Coping was measured by a five-item emotion-focused coping scale and a five-item problem-

Table 1 Descriptive of Sample

	Frequency	Percentage %
Gender		
Male	931	59.3
Female	638	40.7
Age		
Below 18	25	1.6
18 to 25	426	27.2
26 to 30	557	35.5
31 to 40	421	26.8
41 to 50	114	7.3
51 and up	26	1.6
Education		
Middle School	31	2
High School	226	14.4
College	1005	64.1
Postgraduate and above	307	19.6
Length of Lockdown		
1 week - 1 month	467	29.8
1 month - 2 months	691	44
Above 2 months	411	26.2
Social Media Platforms		
Douyin (*TikTok* China)	1266	80.7
Xiaohongshu (Red)	1324	84.4
BiliBili	1264	80.6
Kuaishou (*Kwai* China)	1061	67.6
Other video platforms	1278	81.5

focused coping scale, which was adapted from previous research on motivations for using short video social media platforms.[65] Table 2 provides details of the measurement.

We measured the change in viewing time and interaction on social media platforms during the lockdown period. Viewing time of entertainment and information videos were assessed separately. A brief description of the videos

Table 2 Measurement Items

	Mean	SD	Loading
Anxiety during lockdown (Cronbach's α = 0.958, CR = 0.966, AVE = 0.80)			
1. Feeling nervous, anxious, or on edge.	4.86	1.68	0.88
2. Not being able to stop or control worrying.	4.66	1.67	0.90
3. Worrying too much about different things.	4.77	1.64	0.91
4. Trouble relaxing	4.72	1.65	0.89
5. Being so restless that it is hard to sit still.	4.66	1.67	0.91
6. Becoming easily annoyed or irritable	4.57	1.73	0.88
7. Feeling afraid as if something awful might happen.	4.6	1.71	0.89
Overall Coping (Cronbach's α = 0.941, CR = 0.950, AVE = 0.654)			
Emotion-focused coping (Cronbach's α = 0.895, CR = 0.923, AVE = 0.705)			
1. While watching, you can forget that you and your family and friends are under lockdown.	5.01	1.48	0.85
2. While watching videos, you can escape from what you are doing.	5.12	1.41	0.84
3. When you have nothing better to do, you watch videos.	5.19	1.40	0.86
4. Watching videos gives you something to do to occupy your time.	5.28	1.33	0.83
5. Watching videos relaxes you.	5.21	1.35	0.82

(Continued)

Table 2 (Continued).

	Mean	SD	Loading
Problem-focused coping (Cronbach's α = 0.899, CR = 0.925, AVE = 0.712)			
1. Watching videos can enrich your life during the lockdown.	5.27	1.32	0.84
2. Watching videos can reduce your fear of COVID.	5.18	1.37	0.84
3. Watching videos can help you solve life problems during the lockdown.	5.21	1.37	0.85
4. Watching videos helps you gain new knowledge.	5.30	1.30	0.84
5. Watching videos can help you stay healthy during the lockdown.	5.28	1.32	0.86

Abbreviations: CR, Composite Reliability; AVE, Average Variance Extracted.

included in the entertainment category was provided, which typically feature food and restaurants, travel/daily life, fashion, beauty, comedy, animals/pets, and children. The participants then answered with a 7-point Likert scale from 1 = a significant decrease to 7 = a significant increase. Similarly, participants were asked about their change in viewing time for videos in the information category. Then, participants were asked about their change of likes, comments, and shares, with 1 = increase and 0 = no change, and the scores were then summed up as an index of interaction change (Table 2).

Data Analysis

SPSS (version 23) was used to conduct descriptive analysis. Partial Least Squares Structural Equation Modelling (PLS-SEM) was then used to examine the measurement and the structural model with SmartPLS (version 3.2.9). The current study employed formative measures and pursued an exploratory approach to investigate prediction relationships. In line with the recommendation by Hair et al, PLS-SEM was more appropriate than Covariance-Based Structural Equation Modelling (CB-SEM) for estimating the causal associations.[66] The measurement model was first verified, and then the structural model. The study used the PLS algorithm and bootstrapping (5000 subsamples) to evaluate the significance of path coefficients. A model with overall coping and changes in viewing behaviors. Multi-group analyses were further applied to investigate the behavioral change patterns across the participants with different lockdown durations via either Emotion-focused coping and Problem-focused coping. Additional logistics regressions were conducted to evaluate the change of interaction behavior as binary variables.

Results
Descriptive Results

Results showed that participants were anxious ($M = 4.69$, $SD = 1.49$) during the lockdown. The anxiety level significantly differed across lockdown duration, $F = 50.50$, $p < .001$. People were least anxious when they were on lockdown for a short time (less than one month), $M = 4.14$, and were most anxious when they were on lockdown for between one and two months, $M = 5.00$. While people were on lockdown for more than 2 months, people seemed less anxious, $M = 4.80$. However, the difference was not significant compared with those who stayed home for one to two months, $p = 0.08$. People used problem-focused coping significantly higher than emotional-focused coping, $M = 6.28$ vs $M = 5.17$, $t = 24.78$, $p < .001$.

They increased viewing time more for entertainment videos, $M = 5.31$, than information videos, $M = 5.20$, $t = 3.56$, $p < .001$. On average, people increased at least one interaction activity, $M = 1.59$. Across three kinds of interaction activities, like and comment increased significantly more than share, $M_{like} = 0.60$, $M_{comment} = 0.58$, $M_{share} = 0.40$, $t_{like-share} = 11.44$, $p < .001$, $t_{comment-share} = 10.31$, $p < .001$. Thus, regarding RQ1, people increased their use of short video social media platforms during the lockdown. Further analyses indicated that the change differed across lockdown duration, for entertainment viewing time, $F = 9.85$, $p < .001$, and for interaction activities, $F = 3.8$, $p < .05$, but not for information viewing time. When the lockdown extended more than one month ($t_{within\ vs\ beyond\ one\ month} = 4.25$, $p < .001$), increased viewing time of entertainment was significant, $M = 5.08$, $M = 5.40$, $M = 5.44$, lockdown duration from short to long respectively. Nevertheless, change in viewing time of information showed fewer differences, $M = 5.12$, $M = 5.26$, $M = 5.18$, $p > .05$. The interaction activities showed a relative decrease when lockdown exceeded two months, $t_{within\ vs\ beyond\ two\ months} = -2.45$, $p < .05$, $M = 1.59$, $M = 1.65$, $M = 1.49$.

Measurement Model

To test the common method bias, Harman's single-factor test was conducted by factor analysis without rotation.[67] The principal component analysis revealed that the first factor accounted for 42.45% of the variance, below the cutting-off point of 50%.[68] These constructs were evaluated for internal consistency reliability, indicator reliability, convergent validity, and discriminant validity. The outer loadings are 0.82 and above, which exceeds the suggested threshold of 0.4.[66] The Cronbach's α is between 0.895 and 0.958, and the composite reliability (CR) is between 0.923 and 0.966, exceeding the acceptable threshold of 0.70.[66] The average variance extracted (AVE) value for each construct is 0.654 and above, higher than the advised threshold of 0.5. Thus, these measurements are reliable.[69] The discriminant validity was examined by the heterotrait-monotrait ratio of correlations (HTMT).[70] According to the criteria, the HTMT value of our measurement construct is below 0.90, the ratio of correlations between anxiety and overall coping is 0.527, and thus discriminant validity has been established. However, the HTMT value of emotional-focused coping and problem-focused coping exceeds the threshold.

Structural Model

The structural model was evaluated by collinearity, model fit index, predictive relevance (Q^2), coefficient of determination (R^2), effect size (f^2), and path coefficients (β). The value of the standardized root mean residual (SRMR) was 0.047, suggesting a good approximate model fit (SRMR < 0.08 criterion).[70] The inner and outer Variance Inflation Factor (VIF) values of both the inner and outer are less than 5, which eliminates the issue of multicollinearity among the variables. A blindfolding test (omission distance = 7) was conducted to calculate the Stone-Gaisser's Q^2 values for the constructs, which were ≥0.162, above the minimum requirement of zero.[71]

The structural model explains 25.3% of the construct of overall coping, 44.2% change in viewing time of entertainment videos, 43.2% change in viewing time of information videos, and 5.0% increase in interaction activity. The f^2 values represent the effect size of the contribution of predictor variables towards dependent variables, as small ($f^2 > 0.02$), medium ($f^2 > 0.15$), and large effect size ($f^2 > 0.35$).[72] Our results showed that overall coping had a large size effect on predicting the change in viewing time of entertainment ($f^2 = 0.45$) and of information ($f^2 = 0.503$). Anxiety has a close to large size effect on overall coping ($f^2 = 0.338$), and a small size effect on the change in viewing time of entertainment ($f^2 = 0.029$) and change of interaction ($f^2 = 0.039$).

Our model indicated anxiety significantly affects overall coping, $\beta = 0.503$, $p < .001$ (Figure 1). Anxiety also directly increased viewing time for entertainment videos, $\beta = 0.146$, $p < .01$, and for information videos, $\beta = 0.072$, $p < .01$, though with slightly less magnitude. The overall coping positively increased viewing time for entertainment videos, $\beta = 0.579$ $p < .001$, and for information videos, $\beta = 0.618$, $p < .001$, and interaction activity, $\beta = 0.223$, $p < .001$. The indirect effect of anxiety through coping on video consumption change, for viewing time change for entertainment, $\beta = 0.291$; for
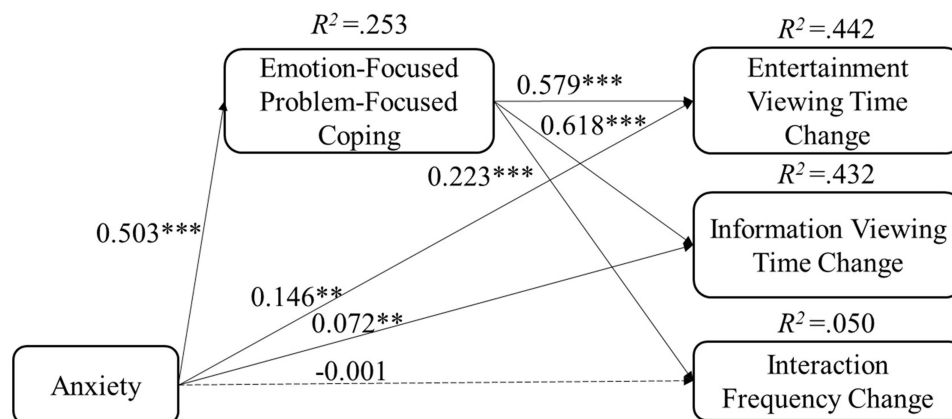
Figure 1 The overall estimated model.
Notes: Model fit: SRMR = 0.061; β = standardized path coefficients; R2= coefficient of determination; solid line indicated significant path coefficient; ***p < 0.001. **p < 0.01.

information, $\beta = 0.311$, and interaction frequency change, $\beta = 0.112$, were all significant, $ps < 0.001$. Therefore, regarding RQ2a and RQ2b, our model indicated that people engage in problem-focused coping (PFC) and emotion-focused coping (EFC) strategies in the use of short video social media for the perceived stress during the lockdown.

Next, to answer RQ2c, we conducted multi-group analyses for participants based on the duration of the lockdown via either emotion-focused coping (EFC) or problem-focused coping (PFC) separately (Table 3). Partial Least Squares Multigroup Analysis (PLS-MGA) was conducted to examine the difference in group path coefficients.[69] In both the EFC and PFC models, there were no significant differences in path coefficients between Model 1 and Model 3. In the models via EFC, the path coefficient for anxiety on EFC was significantly increased from one month (Model 1) to two months (Model 2) and then decreased after two months (Model 3), $\beta_{model1} = 0.487$, $\beta_{model2} = 0.610$, $\beta_{model2} = 0.446$, $p < 0.05$. No other path coefficient significant changed across the different duration of lockdown. In the models via the PFC model, the path coefficient for anxiety on PFC was significantly increased from Model 1 to Model 2, $\beta_{model1} = 0.343$, $\beta_{model2} = 0.544$, $p < 0.01$. Anxiety had a stronger effect on coping when the lockdown was held longer. Although the effects of anxiety on interaction change were not significant for both model 1, $\beta_{model1} = 0.085$, $p = 0.089$, for model 2, $\beta_{model1} = -0.088$, $p = 0.073$, the differences between the two path coefficients were significant, $p < 0.05$ (The difference of these two path coefficients in the EFC model was marginally significant, p = 0.07.). While, as the lockdown extend two months, the effect of PFC on information viewing time change decreased, $\beta_{model2} = 0.657$, $\beta_{model3} = 0.525$, $p < 0.05$.

Further logistic regressions were conducted with each interaction activity, like, comment, and share, as binary dependent variables since Hair et al suggested cautiously using PLS with binary variables.[73] Anxiety, emotion-focused coping, and problem-focused coping were computed by averaging their indicators. Lockdown duration was added as a categorical variable. The results indicated that anxiety, OR = 1.09, $p <. 05$, problem-focused coping, OR = 1.21, $p <. 01$, and lockdown duration, for one to two months, OR = 1.41, $p <. 01$, for above two months, OR = 0.73, $p <. 01$, have significant effects on the frequency change of comment. For share, problem-focused coping significantly increased share frequency, OR = 1.25, $p <. 01$. Regarding like, problem-focused coping also has a significant positive effect on like, OR = 1.24, $p <. 01$, while longer duration showed a negative effect, for one to two months, OR = 0.66, $p <. 01$, for above two months, OR = 0.64, $p <. 01$.

Table 3 Multi-Group Analysis Based on Lockdown Duration via Either EPC or PFC

Path	Model 1	Model 2	Model 3
	1 Week To 1 Month	**1 Month to 2 Months**	**Above 2 Months**
Model via Emotion-focused coping (EFC)			
Anxiety → EFC	0.487***a	0.610***b	0.446***a
Anxiety → Entertainment viewing time change	0.140**	0.178***	0.104*
Anxiety → Information viewing time change	0.059	0.054	0.140**
Anxiety → Interaction frequency change	0.054	−0.088	0.064
EFC → Entertainment viewing time change	0.586***	0.502***	0.558***
EFC → Information viewing time change	0.596***	0.611***	0.524***
EFC → Interaction frequency change	0.200***	0.222***	0.184**
Model via Problem-focused coping (PFC)			
Anxiety → PFC	0.343***a	0.544***c	0.417***
Anxiety → Entertainment viewing time change	0.232***	0.205***	0.121**
Anxiety → Information viewing time change	0.155***	0.096*	0.155***
Anxiety → Interaction frequency change	0.085a	−0.088b	0.038
PFC → Entertainment viewing time change	0.562***	0.512***	0.556***
PFC → Information viewing time change	0.563***	0.657***a	0.525***b
PFC → Interaction frequency change	0.196***	0.249***	0.262***

Notes: Standardized path coefficients were reported, significant differences indicated by superscript [a, b]p <0.05; [a, c]p <0.01; ***p < 0.001. **p < 0.01. *p < 0.05.

Discussion

The current study explained the relationship between the use of short video social media platforms and stress. We considered the situational context and identified the mechanism through which short video social media serves as a coping tool.

First, our findings suggested a considerable growth in the use of short video platforms. For the change of viewing time of entertainment, only 9.4% of respondents decreased, 14.6% remained the same, and 76% increased their viewing time (19.1% for a substantial increase). Similarly, for the viewing time of information, only 7.3% dropped, 20.1% remained the same, and 72.7% rose (15.4% for a substantial increase). Compared to prior findings of media repertoire change due to the pandemic, 39.3% of respondents reported an increase in *Facebook* use, 31.2% on *YouTube*, and 25% on *Instagram*.[63] Our results showed a consistent pattern that the use of short video platforms increased due to the pandemic, even though these platforms do not offer instant communication. Thus, during the lockdown, even when competing with other forms of media or social media, the appeal of short video social media platforms is evident. Features of the short video platforms, such as humor use and camera view, that can enhance viewers' perception of immersion, social presence, and entertainment may add to its attraction.[74]

Furthermore, our structural model demonstrated that the increased use of short video social media platforms was motivated by a coping mechanism for the perceived stress caused by the pandemic. The coping mechanism has a substantial effect size in predicting the change in viewing time. A qualitative examination of an open-ended survey found that media with passive (but selectable) viewing content benefited COVID-19 stress management.[63] Another study highlighted the importance of entertainment media such as TV/movie and music consumption to the coping processes. Indeed, we found converging results using a structural modeling approach that examines the association between feeling stressed and reaching out to short video social media for coping. In addition to the diversified content offering on short video platforms, findings suggest that algorithm-related affordances in terms of perceived effortlessness, perceived recommendation accuracy, and perceived recommendation serendipity contribute to users' optimal flow experience.[56] Throughout this process, individuals employed both problem-focused coping (PFC) and emotion-focused coping (EFC), highlighting the flexibility of short video platforms in catering to diverse coping needs. These platforms offer a wide array of content that can be effectively utilized to either address specific issues or provide emotional comfort, demonstrating their adaptability in supporting various coping strategies.

Third, we characterized the situational context by lockdown duration. This offers insight into how perceived stress, coping mechanisms, and user behavior evolve in response to varying degrees of social distancing. Two months seems to be a threshold, as people who were on lockdown for more than two months did not experience increased anxiety compared to those who were on lockdown for one to two months. This finding aligns with the results observed by Wang et al, which indicated that perceived stress does not exhibit a linear relationship with the duration of lockdown.[61] Specifically, individuals who underwent a one to two-month lockout had the highest levels of anxiety and motivation to utilize coping strategies. Accordingly, the coping strategy was also adjusted. The effect of EFC on information view time was lessened for individuals who experienced a lockdown for more than two months compared to those who had a lockdown lasting between one to two months. These findings suggest that individuals may have undergone a process of adaptation to the situation after two months of lockdown.

In general, the direct effects of anxiety on interaction activities are less significant but display a more intriguing pattern. Although increased interaction activities coupled with an increase in viewing time, for people who experienced a lockdown for one to two months, anxiety negatively affects the interaction tendency. It shows a significantly different pattern compared with those who lockdown for shorter periods of time. Through the perspective of lockdown duration, we showed that the effects of anxiety and the strength of coping mechanisms can be varied.

Lastly, we noticed that the validity test indicated that EFC and PFC are hardly discriminant. This observation may be explained by the influence of algorithmic affordances. Although the main interface of the most popular short video social media platforms differs, they all featured an AI-based recommendation algorithm. Content on *Douyin* is predominantly determined by the platform. The strength of algorithmic content distribution was slightly weaker on *Kuaishou, BiliBili*, and *Xiaohongshu*, in that order. In this way, the user's motivation is blurred with the platform algorithm. For example,

people undergoing a lockdown sought updated news information. The platform tags user interests and recommends entertainment content that users nearby (also under lockdown) prefer. Consequently, content choices are formed collaboratively by users and algorithms.

Theoretical Implications

Wolfers and Schneider's scoping review on media coping revealed an intriguing gap in the existing literature.[27] Despite the considerable amount of time, people spend on social media, their analysis found that a significant portion of media coping studies primarily focused on digital media in general (30%) or traditional media like television (12%), with only a quarter of the literature dedicated to social media. Furthermore, they highlighted the absence of consideration for the role of media in transactional stress theory.[75] Problem-focused coping using media has also been notably overlooked.[76,77]

The current study is grounded in the transactional stress model and investigates both emotion-focused and problem-focused coping with the use of short video social media. Rather than treating media use as a coping strategy per se, we examine its function, specifically measuring the precise utilization of short video in the coping process. Moreover, our research extends the field by adopting a situational perspective. While a few qualitative studies have hinted at the potential variations in media use for coping over time, our cross-sectional design allows us to compare individuals experiencing lockdowns of varying durations and analyze their use of short video platforms for coping across different situations.[76,78]

In addition, we incorporate the concept of coping flexibility into our study, explicitly advancing the understanding of the strategy-situation fit. In an era where many people utilize multiple social media platforms, our findings suggest that individuals can tailor their coping strategies to align with the diverse affordances offered by each platform. Our findings provide a nuanced understanding through detailed measurement of coping behaviors, demonstrating that different content and interaction patterns vary based on the coping mechanism being employed. PFC and EFC often intertwine within the coping process, signifying that individuals may employ both strategies simultaneously or flexibly switch between them when selecting content for coping. Coping behaviors on short video platforms tend to manifest more prominently through changes in viewing behavior rather than in interactive behavior. Consequently, even within a single platform, individuals demonstrate a remarkable capacity to flexibly adjust their interactions to accommodate various coping strategies. Conversely, a lack of alignment between coping strategies and the platform, exemplified by issues like information overload or exposure to low-quality information, can potentially result in adverse effects.[39,45,46] This insight helps explain the mixed findings regarding the effectiveness of social media use for coping and underscores the importance of considering situational nuances in research design. Furthermore, we highlight the need for future investigations into individual differences, including vulnerability and coping flexibility as personal traits, to deepen our understanding in this area. Moreover, our research suggests that algorithmic curation may play a significant role in influencing the interplay with coping behaviors, particularly in terms of content selection. Future research could potentially shift its focus towards investigating the mechanisms by which algorithms may impact coping behaviors on digital platforms.

Practical Implications

The current study provides stakeholders with insights for constructing sustainable short video platforms. Numerous studies have explored the psychological effects of short video platforms, with a predominant focus on problematic use and its adverse impact on mental health. Contrary to the prevailing narrative, our research highlights the potential benefits of the diverse range of content available on these platforms. This content serves as a valuable resource for users seeking information to cope with stress and mitigate negative emotions. As argued by Avella, platforms like *TikTok*, which host mental health-related content, have the potential to offer valuable support to individuals who may be at risk of experiencing mental health problems.[33]

During crisis events, short video platforms have demonstrated their potential to become vital channels for information and communication, facilitating government-public negotiations, grassroots content creation, and the distribution of health messages.[79–81] They offer a platform where solutions to pressing issues can be disseminated and reach a wider audience through algorithmic curation. This approach proves effective in providing coping mechanisms. Furthermore,

these platforms can be instrumental in promoting content that supports personal psychological well-being, offering users a holistic approach to enhancing their mental health.

Limitation

This study's results must be interpreted in light of its limitations. With a cross-sectional design, we cannot claim causality as a longitudinal study. Instead of self-reported data, future studies could adopt continuous physiological stress measurements, such as fitness trackers, and evaluate stressful situations at different time intervals to augment these findings. Additionally, individual differences such as gender difference may also be considered in examining the variations. While this study focused on the technological features of short video platforms during the pandemic, future studies could explore the socio-technical assemblages beyond the pandemic, specifically from the perspective of algorithm affordance as suggested by Shin and Park.[82] In addition, incorporating objective measures of user behaviors on social media platforms could be accurate due to the diversity of media consumed by individuals. Last, given lockdown mandating stay-at-home may have led to an overreliance on media use. The coping mechanism for using short video platforms needs to be reevaluated in dealing with other more common and enduring stressors.

Statement

The study complies with the Declaration of Helsinki.

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Disclosure

The authors report no conflicts of interest in this work.

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