Discrimination and Well-Being Among Asians/Asian Americans During COVID-19: The Role of Social Media

Chia-chen Yang, PhD,[1] Jiun-Yi Tsai, PhD,[2,*] and Shuya Pan, PhD[3]

Abstract

Since the outbreak of COVID-19, Asians and Asian Americans have been experiencing an uptick of discrimination. With most people experiencing months of lockdowns, social media may become a particularly important tool in Asian people's coping with discrimination. Grounded in the multiactivity framework of social media use, this study explored whether experience with discrimination was associated with more social media use among Asian people and how adaptive social media use was for their well-being during COVID-19. A sample of 242 Asians/Asian Americans residing in the United States ($M_{age} = 32.88$, $SD = 11.13$; 48 percent female) completed an online survey. Results showed that more experience of discrimination during COVID-19 was associated with more engagement in social media private messaging, posting/commenting, and browsing, but the activities yielded different implications for subjective well-being. Both social media private messaging and posting/commenting were associated with more perceived social support, which contributed to better subjective well-being. Social media posting/commenting was also related to better subjective well-being through lower worry about discrimination. In contrast, social media browsing was associated with poorer subjective well-being through more worry about discrimination.

Keywords: social media, discrimination, well-being, coping, COVID-19

Introduction

SINCE THE OUTBREAK OF COVID-19, Asians/Asian Americans have been experiencing an uptick of discrimination,[1,2] a stressor detrimental to well-being.[3–5] During this time, due to large-scale lockdowns, social media may become a particularly important tool in Asian people's coping with discrimination, but it remains unclear whether and how social media use associates with subjective well-being when the group faces increased discrimination. Grounded in the multiactivity framework of social media use,[6–8] this study explored whether experience with discrimination was associated with more social media use among Asian people and how adaptive social media use was to their well-being during COVID-19.

Under our chosen framework, the implications of social media use vary as a function of the activities performed on social media.[9,10] Despite this consensus, scholars using the framework differ in how they categorize social media activities. Specifically, although most scholars recognize the difference between passive use (e.g., browsing) and nonpassive use (e.g., messaging, commenting, and posting),[6–8] they vary in the conceptualization of nonpassive social media activities. Some scholars refer to most nonpassive use as active usage,[8,9] whereas others make distinctions between targeted interaction (e.g., messaging and commenting) and broadcasting (e.g., posting).[6,11] Still others differentiate private messaging from public posting.[7]

Regardless of the categorization, messaging, commenting, posting, and browsing are among the major activities, and experience of discrimination may associate with higher engagement in all these activities as they have the potential to satisfy various needs, such as reaching out to family and friends, sharing or documenting experiences, receiving information, and diversion.[12,13] However, not all social media activities are instrumental.[6,14] Whereas nonpassive activities are usually associated with better well-being,[7,14] passive use is typically related to poorer well-being.[8,9,14]

Two processes seem especially relevant in explaining the relationship between social media use and well-being. The

[1]School of Educational Foundations, Leadership and Aviation, Oklahoma State University, Stillwater, Oklahoma, USA.
[2]School of Communication, College of Social & Behavioral Sciences, Northern Arizona University, Flagstaff, Arizona, USA.
[3]School of Journalism and Communication, Renmin University of China, Beijing, P.R. China.
*ORCID ID (https://orcid.org/0000-0001-7333-2821)

first one is perceived social support, which buffers the negative impact of stress and improves well-being.[15,16] Social support stems from relationships and positive interactions.[17] Nonpassive social media use, such as interacting with others and actively posting on social media, associates with better well-being through social support.[7,18,19] In contrast, social media browsing does not relate to social support[7] likely due to its passive nature. Second, emotions induced by perceived social reality may also explain how social media use relates to well-being. When people form judgments, they usually retrieve only a small set of information frequently and/or recently activated in their memory,[20] which explains the cultivation effect[21] identified in the use of social media.[22] During COVID-19, when information about the pandemic and pandemic-related discrimination against the Asian community[1] was circulated on social media, browsing may construct a social reality that anti-Asian racism is an increasing concern, leading to Asian users' worries about being discriminated. Worry, an emotion with a future-oriented focus on anticipated threats, is related to poor well-being.[23] In contrast, because the cultivation theory[21] concerns passive media consumption, whether nonpassive social media use also elicits worry about discrimination is unclear. We proposed a path model to investigate the following hypotheses*:

H1: Experience of discrimination associated with higher engagement in non-passive social media use, which induced higher perceived social support and thus better subjective well-being.

H2: Experience of discrimination associated with higher engagement in passive social media use, which induced more worry about discrimination and thus poorer subjective well-being.

RQ1: How did experience of discrimination relate to subjective well-being through nonpassive social media use and then worry about discrimination?

Method

Participants

Recruited from Amazon Mechanical Turk in May 2020, 242 Asians/Asian Americans residing in the United States (48 percent female; $M_{age} = 32.88$, $SD = 11.13$) provided consent before completing the IRB-approved online survey, and received a monetary incentive for their participation.

Measures

Participants completed the following scales by considering their experience since the outbreak of COVID-19.

Experience of discrimination.   We used the 5-item Everyday Discrimination Scale[24] (1 = *Never*, 5 = *A lot*; $\alpha = 0.93$; M = 1.87; SD = 0.93). The item "People act as if they think you are not smart" was modified as "People act as if you are dangerous" to reflect a bias against Asians since COVID-19.

---

*Existing literature suggests that social media browsing would not relate to social support. Given that only the alternative hypothesis should be proposed, we did not hypothesize for this path. This path, however, was still included in the analysis for the comprehensiveness of the model.

Social media use.   We designed a 12-item scale to measure participants' engagement in nonpassive and passive use of social media (1 = *not at all*, 7 = *very much*). Participants answered the questions by considering the social medium they used most often. For each subscale, there were questions about general use, use related to COVID-19, and use associated with racism related to COVID-19 (See Tables 1 and 2 for scale items, internal reliability, and mean scores).

Perceived social support.   We used the 15-item perceived social support scale reported by Utz and Breuer[25] (1 = *not at all*, 5 = *very often*; $\alpha = 0.93$; M = 2.71; SD = 0.83).

Worry about discrimination.   We again used the Everyday Discrimination Scale[24] ($\alpha = 0.96$; M = 2.58; SD = 1.18) but changed the instruction to "Since the COVID-19 outbreak, how often have you worried about the following things?" Because worry is future oriented, future tense was used for the scale items.

Subjective well-being.   We used the 5-item Satisfaction with Life Scale[26] (1 = *strongly disagree*, 7 = *strongly agree*; $\alpha = 0.92$; M = 4.15; SD = 1.47).

Analysis

Given the lack of consensus on the categorization of social media use (especially for nonpassive use), we started with exploratory factor analysis (EFA) of the social media use scale. A principal axis factoring with direct oblimin rotation was conducted. Scree plot and the principle of eigenvalues >1 were used to determine the number of factors. Items would be removed if they did not load on any factors (factor loading <0.40) or if they cross-loaded on more than one factor (loading difference <0.10).

We then examined the hypothesized path model, controlling for age and gender, with maximum likelihood robust being the estimator. Subjective well-being was regressed on perceived social support and worry about discrimination, both of which were regressed on social media activities, which, in turn, was regressed on experience of discrimination. We also controlled for the effects of experience of discrimination on worry about discrimination and well-being. Error terms of the three social media activities were allowed to covary as different social media activities often correlate.[27] The model was deemed acceptable when comparative fit index (CFI) and Tucker–Lewis index (TLI) were close to or >0.95,[28] coupled with an root-mean-squared error of approximation (RMSEA) being <0.08.[29]

Results

Results of EFA suggested a three-factor solution. All items were retained as each item loaded on one and only one factor (loading differences: 0.30–0.79). Six items of *posting and commenting* loaded on Factor 1 ($\alpha = 0.93$), three items of *browsing* on Factor 2 ($\alpha = 0.81$), and three items of *private messaging* on Factor 3 ($\alpha = 0.84$). See Table 1 for explained variance and factor loading.

The hypothesized path model met all the fit criteria, but age and gender were nonsignificant and were thus removed, after which the model remained well fitted: $\chi^2 (5) = 3.63$, $p = 0.604$; RMSEA = 0.000, confidence interval (90% CI 0.000–0.076); CFI = 1.000; and TLI = 1.008. See Table 3 and Figure 1 for

TABLE 1. RESULTS OF EXPLORATORY FACTOR ANALYSIS OF THE SOCIAL MEDIA USE SCALE

	Factor loading	Eigenvalue	Variance explained	α
Posting and commenting		6.28	49.71%	0.93
1. In general, how much do you post or repost things to your own page since the COVID-19 outbreak?	0.82			
2. In general, how much do you interact with others through commenting since the COVID-19 outbreak?	0.62			
3. On social media, how much do you post or repost information and news related to COVID-19?	0.91			
4. On social media, how much do you discuss COVID-19 with others through commenting?	0.76			
5. On social media, how much do you post or repost information and news about racism related to COVID-19?	0.77			
6. On social media, how much do you discuss racism related to COVID-19 with others through commenting?	0.65			
Browsing		1.58	10.18%	0.81
1. In general, how much do you read posts and browse your newsfeed since the COVID-19 outbreak?	0.84			
2. On social media, how much do you pay attention to and read posts related to COVID-19?	0.79			
3. On social media, how much do you pay attention to and read about racism related to COVID-19?	0.58			
Private messaging		1.10	6.31%	0.84
1. In general, how much do you interact with others through private messaging since the COVID-19 outbreak?	0.68			
2. On social media, how much do you discuss COVID-19 with others through private messaging?	0.81			
3. On social media, how much do you discuss racism related to COVID-19 with others through private messaging?	0.65			

path coefficients. Experience of discrimination was associated with higher engagement in all three types of social media activities and more worry about discrimination, but not subjective well-being. Private messaging was associated with higher perceived social support but not worry about discrimination. Posting/commenting was related to higher perceived social support and lower worry about discrimination. Browsing was not associated with perceived social support, but was related to more worry about discrimination. Perceived social support was related to better subjective well-being whereas worry about discrimination was related to lower well-being.

Four indirect paths of interest were significant: experience of discrimination was related to better subjective well-being

through (a) more private messaging and then more perceived social support (supporting H1), (b) more posting/commenting and then more perceived social support (supporting H1), and (c) more posting/commenting and then less worry about discrimination (answering RQ1). In contrast, experience of discrimination was associated with poorer subjective well-being through more browsing and thus more worry about discrimination (supporting H2).

Discussion

During COVID-19, news stories of anti-Asian discrimination[1] have been disseminated. In this stressful context, Asians/Asian Americans in the United States appeared to use social media as a coping tool—those who experienced discrimination during COVID-19 engaged in more social media private messaging, posting/commenting, and browsing. Social media private messaging and posting/commenting were both associated with better subjective well-being through more perceived social support, consistent with earlier research.[7,18,19] Among the three social media activities, private messaging had the strongest association with perceived social support, likely because private communication channels (e.g., messaging and texting) are often used among closer associates,[30] with whom social media communication is particularly beneficial for well-being.[11] Posting and commenting can serve as a mobilization request, defined as broadcasted posts in which people ask questions, request information, or seek various forms of assistance, and such posts predict more bridging social capital.[31] Some posts and comments may also involve self-disclosure related to COVID-19 and racism. When people share authentic experiences, emotions, and thoughts and reveal their

TABLE 2. DESCRIPTIVE STATISTICS OF THE SOCIAL MEDIA USE SCALE

	Private messaging	Posting and commenting	Browsing
Mean (SD) for overall sample (N=242)	3.12 (1.55)	2.85 (1.58)	4.74 (1.41)
Mean (SD) by gender			
Female (N=116)	3.10 (1.50)	2.83 (1.51)	4.83 (1.34)
Male (N=125)	3.14 (1.60)	2.87 (1.66)	4.65 (1.48)
Other (N=1)	1.67	3.17	5.67
Mean (SD) by age			
18–29 (N=107)	3.12 (1.47)	2.75 (1.56)	4.83 (1.44)
30–39 (N=80)	3.08 (1.56)	2.87 (1.53)	4.60 (1.47)
40–59 (N=46)	3.23 (1.72)	3.17 (1.67)	4.87 (1.20)
60 and above (N=9)	2.76 (1.78)	2.33 (1.94)	4.30 (1.60)

Note: The scale was a 7-point Likert scale.

TABLE 3. RESULTS OF PATH ANALYSIS

	β	SE	p
Direct paths of interest			
Experience of discrimination → SM private messaging	0.44	0.05	<0.001
Experience of discrimination → SM posting and commenting	0.45	0.05	<0.001
Experience of discrimination → SM browsing	0.23	0.05	<0.001
SM private messaging → perceived social support	0.35	0.10	<0.001
SM private messaging → worry about discrimination	0.11	0.10	0.259
SM posting and commenting → perceived social support	0.28	0.10	0.007
SM posting and commenting → worry about discrimination	−0.37	0.10	<0.001
SM browsing → perceived social support	0.03	0.06	0.610
SM browsing → worry about discrimination	0.31	0.05	<0.001
Perceived social support → subjective well-being	0.25	0.07	<0.001
Worry about discrimination → subjective well-being	−0.22	0.08	0.006
Controlled direct paths			
Experience of discrimination → worry about discrimination	0.70	0.05	<0.001
Experience of discrimination → subjective well-being	−0.02	0.09	0.858
Significant indirect paths to well-being: single-level mediator			
SM private messaging → perceived social support → subjective well-being	0.09	0.03	0.011
SM posting and commenting → perceived social support → subjective well-being	0.07	0.03	0.030
SM posting and commenting → worry about discrimination → subjective well-being	0.08	0.04	0.019
SM browsing → worry about discrimination → subjective well-being	−0.07	0.03	0.012
Experience of discrimination → worry about discrimination → subjective well-being	−0.15	0.06	0.007
Significant indirect paths to well-being: sequential mediators			
Experience of discrimination → SM private messaging → perceived social support → subjective well-being	0.04	0.02	0.020
Experience of discrimination → SM posting and commenting → perceived social support → subjective well-being	0.03	0.02	0.038
Experience of discrimination → SM posting and commenting → worry about discrimination → subjective well-being	0.04	0.02	0.023
Experience of discrimination → SM browsing → worry about discrimination → subjective well-being	−0.02	0.01	0.028

SM, social media.

vulnerability on social media, they receive positive feedback from the social media network and greater social support.[32–34]

Social media posting/commenting was also related to better well-being through lower worry about discrimination. Although one possible explanation is that social support derived from posting/commenting[7,19] reduced worry, our additional analysis showed that perceived social support did not mitigate worry about discrimination ($\beta = 0.05$, $p = 0.395$). Another, more plausible, explanation is that posting and commenting empower people and give them a sense of control, which is crucial to well-being,[35] especially in a stressful situation.[36] When people post and share information on social media, they become an information source and develop a sense of influence through relevant and thoughtful feedback from their
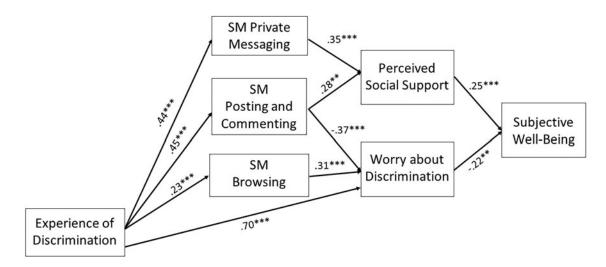

FIG. 1. Results of path analysis. **$p < 0.01$, ***$p < 0.001$. Only significant paths are presented. All indirect paths were significant. SM, social media.

network.[37] Such sense of influence can be critical in the circumstances wherein individuals face multifaceted stressors that seem out of their control. Furthermore, public posting and commenting, as a form of self-presentation, can also be an intentional act that induces self-reflection,[34] which directs people's attention to problem solving rather than fixation on negative and anxious thoughts.[38] Participants' lower levels of worry, in the context of posting/commenting, may reflect higher self-efficacy to respond to the situation.

In contrast, browsing was related to poorer subjective well-being through more worry about discrimination. Participants who experienced discrimination became more worried about further discrimination through more browsing, likely because information on social media during this period cultivated in them a social reality[21] wherein anti-Asian racism was ubiquitous. Browsing during COVID-19 likely makes information about racism in one's memory highly accessible; given the positive correlation between accessibility of information about an incident and assessed probability of the incident,[20] the identified path is not surprising.

Limitations and Implications

The study has a few limitations. First, given the cross-sectional nature of the data, directionality of the relationships remained inconclusive. For instance, did social media use contribute to perceived social support and worry about discrimination or the other way around? To clarify this point, we examined a reverse-order model in which the three social media activities switched their positions with perceived social support and worry about discrimination. The model fit poorly: χ^2 (6) = 57.63, $p < 0.001$; RMSEA = 0.189, 90% CI (0.146–0.234); CFI = 0.926; and TLI = 0.741, suggesting that the assumed directionality in our original model was more reasonable. However, longitudinal data are still needed for stronger evidence. Second, we did not examine what the participants messaged, posted/commented, and browsed, and yet the content and its tone may condition the implications of these social media activities. Future research aiming at analyzing the content of users' social media activities would advance our understanding of social media content and well-being. Third, the study focused on one specific challenge faced by self-identified Asians/Asian Americans, but there are challenges experienced by other marginalized groups during COVID-19, such as isolation and loneliness, experience and worry about infection, and financial hardship. Using our model, future research may explore how nonpassive social media use can possibly alleviate distress in the face of these other difficulties.

At the theoretical level, the study confirmed the speculation that social media played an important role in people's lives during large-scale lockdowns. The model also clarified the distinct implications of different social media activities and revealed the promising role of nonpassive social media use in coping with discrimination. Practically, we suggested that social media private messaging and posting/commenting, but not browsing, should be an instrumental tool for coping with discrimination and would associate with better well-being. Although it was not directly examined in the study, given that private messaging likely features communication with closer associates,[30] intimate self-disclosure may play a role in the positive path involving this activity.[39] In more public channels, such as posting and commenting, sharing authentic experiences, emotions, and thoughts is associated with greater positive feedback and social support.[32–34] Social media users may consider these specific practices (intimate self-disclosure and authentic self-presentation) in their messaging and posting. For people who browse to cope with discrimination, although they may do so to seek information as a way to cope with anxiety,[40] they should be reminded of a potential affective forecasting error[41] they are committing—they may hold a false assumption that browsing will make them feel better. For many people, social media and communication technologies may have become the primary channel for communication during COVID-19; it is our hope that the study would provide much-needed guidance for people to use these technologies to their advantage during this unprecedented time.

Author Disclosure Statement

No competing financial interests exist.

Funding Information

References

1. Kandil CY. (2020) Asian Americans report over 650 racist acts over last week, new data says. https://www.nbcnews.com/news/asian-america/asian-americans-report-nearly-500-racist-acts-over-last-week-n1169821 (accessed May 23, 2020).
2. The impact of the COVID-19 pandemic on marginalized populations in the United States: a research agenda [Editorial]. Journal of Vocational Behavior 2020. [Epub ahead of print]; DOI: 10.1016/j.jvb.2020.103439.
3. Hudson DL, Neighbors HW, Geronimus AT, et al. Racial discrimination, John Henryism, and depression among African Americans. Journal of Black Psychology 2015; 42:221–243.
4. Juang LP, Kiang L. (2019) Racial discrimination and adjustment among Asian American youth: Vulnerability and protective factors in the face of ''Chinks,'' ''Dog-Eaters,'' and ''Jackie Chan.'' In: Fitzgerald HE, Johnson DJ, Qin DB, Villarruel FA, Norder J, eds. *Handbook of children and prejudice*. Cham, Switzerland: Springer Nature Switzerland AG, pp. 249–268.
5. Sellers RM, Caldwell CH, Schmeelk-Cone KH, et al. Racial identity, racial discrimination, perceived stress, and psychological distress among African American young adults. Journal of Health and Social Behavior 2003; 44:302–317.
6. Yang C.-C. Instagram use, loneliness, and social comparison orientation: interact and browse on social media, but don't compare. Cyberpsychology, Behavior, & Social Networking 2016; 19:703–708.
7. Frison E, Eggermont S. Exploring the relationships between different types of Facebook use, perceived online social support, and adolescents' depressed mood. Social Science Computer Review 2016; 34:153–171.
8. Verduyn P, Lee DS, Park J, et al. Passive Facebook usage undermines affective well-being: experimental and longitudinal evidence. Journal of Experimental Psychology 2015; 144:480–488.
9. Thorisdottir IE, Sigurvinsdottir R, Asgeirsdottir BB, et al. Active and passive social media use and symptoms of anxiety and depressed mood among Icelandic Adolescents. Cyberpsychology, Behavior, and Social Networking 2019; 22:535–542.

10. Yang C.-C., Lee Y. Interactants and activities on Facebook, Instagram, and Twitter: associations between social media use and social adjustment to college. Applied Developmental Science 2020; 24:62–78.

11. Burke M, Kraut RE. The relationship between Facebook use adn well-being depends on communicaiton type and tie strength. Journal of Computer-Mediated Coomucation 2016; 21:265–281.

12. Kwon MW, D'Angelo J, McLeod DM. Facebook use and social capital: to bond, to bridge, or to escape. Bulletin of Science, Technology & Society 2013; 33:35–43.

13. Sheldon P, Bryant K. Instagram: motives for its use and relationship to narcissism and contextual age. Computers in Human Behavior 2016; 58:89–97.

14. Liu D, Baumeister RF, Yang CC, et al. Digital communication media use and psychological well-being: a meta-analysis. Journal of Computer-Mediated Communication 2019; 24:259–274.

15. House J. Structures and processes of social support. Annual Review of Sociology 1988; 14:293–318.

16. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis: a theoretical analysis. Psychological Bulletin 1985; 98:310–357.

17. Baumeister RF, Leary MR. The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological Bulletin 1995; 117:497–529.

18. Seo M, Kim J, Yang H. Frequent interaction and fast feedback predict perceived social support: using crawled and self-reported data of Facebook users. Journal of Computer-Mediated Communication 2016; 21:282–297.

19. Jung Y, Song H, Vorderer P. Why do people post and read personal messages in public? The motivation of using personal blogs and its effects on users' loneliness, belonging, and well-being. Computers in Human Behavior 2012; 28:1626–1633.

20. Shrum LJ. (2002) Media consumption and perceptions of social reality: Effects and underlying processes. In: Bryant J, Oliver MB, eds. *Media effects: Advances in theory and research.* New York, NY: Routledge, pp. 50–73.

21. Gerbner G, Gross L. Living with television: the violence profile. Journal of communication 1976; 26:172–199.

22. Intravia J, Wolff KT, Paez R, et al. Investigating the relationship between social media consumption and fear of crime: a partial analysis of mostly young adults. Computers in Human Behavior 2017; 77:158–168.

23. Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. Rethinking rumination. Perspectives on Psychological Science 2008; 3: 400–424.

24. Sternthal MJ, Slopen N, Williams DR. Racial disparities in health: how much does stress really matter?. Du Bois Review 2011; 8:95–113.

25. Utz S, Breuer J. The relationship between use of social network sites, online social support, and well-being, results from a six-wave longitudinal study. Journal of Media Psychology 2017; 29:115–125.

26. Diener ED, Emmons RA, Larsen RJ, et al. The satisfaction with life scale. Journal of Personality Assessment 1985; 49:71–75.

27. Yang C.-C. Similar patterns, different implications: first-generation and continuing college students' social media use and its association with college social adjustment. Journal of College Student Retention: research, Theory & Practice 2020. Advance online publication. DOI: 10.1177/1521025120902755.

28. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. Structural Equation Modeling 1999; 6:1–55.

29. Browne MW, Cudeck R. (1993) Alternative ways of assessing model fit. In: Bollen KA, Long JS, eds. *Testing structural equation models*. Newbury Park, CA: Sage, pp. 136–162.

30. Yang CC, Brown BB, Braun MT. From Facebook to cell calls: layers of electronic intimacy in college students' interpersonal relationships. New Media & Society 2014; 16:5–23.

31. Ellison NB, Gray R, Lampe C, et al. Social capital and resource requests on Facebook. New Media & Society 2014; 16:1104–1121.

32. Kim J, Lee J, ER. The Facebook paths to happiness: effects of the number of Facebook friends and self-presentation on subjective well-being. Cyberpsychology, Behavior, and Social Networking 2011; 14:359–364.

33. Wang P, Wang X, Zhao M, et al. Can social networking sites alleviate depression? The relation between authentic online self-presentation and adolescent depression: a mediation model of perceived social support and rumination. Current Psychology 2019; 38:1512–1521.

34. Yang Cc, Brown BB. Online self-presentation on Facebook and self development during the college transition. Journal of Youth and Adolescence 2016; 45:403–416.

35. Dijkstra, MTM, Homan AC. Engaging in rather than disengaging from stress: effective coping and perceived control. Frontiers in Psychology 2016; 7:1–12.

36. Stimpson JP. Short communication: prospective evidence for a reciprocal relationship between sense of control and depressive symptoms following a flood. Stress and Health 2006; 22:161–166.

37. Oeldorf-Hirsch A, Sundar SS. Posting, commenting, and tagging: effects of sharing news stories on Facebook. Computers in Human Behavior 2015; 44:240–249.

38. Treynor W, Gonzalez R, Nolen-Hoeksema S. Rumination reconsidered: a psychometric analysis. Cognitive Therapy and Research 2003; 27:247–259.

39. Valkenburg PM, Peter J. The effects of instant messaging on the quality of adolescents' existing friendships: a longitudinal study. Journal of Communication 2009; 59:79–97.

40. Jin Y, Fraustino JD, Li BF. The scared, the outraged, and the anxious: how crisis emotions, involvement, ad demographics predict publics' conative coping. International Journal of Strategic Communication 2016; 10:289–308.

41. Sagioglou C, Greitemeyer T. Facebook's emotional consequences: why Facebook causes a decrease in mood and why people still use it. Computers in Human Behavior 2014; 35:359–363.

Address correspondence to:
Dr. Shuya Pan
School of Journalism and Communication
Renmin University of China
No. 59 Zhongguancun Street
Haidian District
Beijing 100872
P.R. China

E-mail: shuya@ruc.edu.cn

Dr. Chia-chen Yang
School of Educational Foundations,
Leadership and Aviation
Oklahoma State University
217 Willard Hall
Stillwater, OK 74078
USA

E-mail: chia-chen.yang@okstate.edu