



Seeking and Sharing Mental Health Information on Social Media During COVID-19: Role of Depression and Anxiety, Peer Support, and Health Benefits

Najma Akhther^{1,2} · Pradeep Sopory¹

Received: 27 September 2021 / Revised: 3 November 2021 / Accepted: 21 December 2021 / Published online: 11 January 2022
© The Author(s), under exclusive licence to Springer Nature Switzerland AG 2022

Abstract

This study conducted a cross-sectional online survey ($N=865$) to determine whether self-ratings of depression and anxiety, perceived peer support, and perceived health benefits of social media predicted mental health-related information seeking and sharing behaviors during the COVID-19 pandemic. Hierarchical regression models showed only depression self-ratings, anxiety self-ratings, and perceived health benefits predicted information seeking, whereas depression self-ratings, anxiety self-ratings, perceived peer support, and perceived health benefits all predicted information sharing. There was a statistically significant positive interaction of anxiety self-ratings and perceived peer support on information sharing. Participants' experience of COVID-19 predicted both information seeking and sharing. Mental health-related information seeking and sharing differed across social media platforms, with YouTube, Facebook, and Instagram used most for information seeking and Facebook, Instagram, and Twitter used most for information sharing. Findings suggest social media mental health-related seeking and sharing behaviors have the potential to facilitate coping surrounding mental health.

Keywords Information seeking · Information sharing · Social media · Depression and anxiety · Mental health coping · COVID-19

Depression and anxiety are the most prevalent mental health conditions in the USA that cause distressing symptoms affecting how people feel, think, and manage their daily activities and interactions (American Psychiatric Association [APA], 2013; Kroenke et al., 2016). It is estimated that more than 17.3 million people experience at least one major depressive episode in a year, while over 40 million people experience an anxiety disorder (McCance-Katz, 2019). The ongoing coronavirus disease-2019 (COVID-19) pandemic

has worsened these conditions due to fear of infection, death, social isolation, and unemployment (Czeisler et al., 2020; Liu et al., 2021; Vahratian et al., 2021). During stressful situations, social media can serve as an important tool to seek and share mental health information and cope with the stressors (Boyd & Ellison, 2008; Garfin, 2020; Naslund et al., 2020; Westerman et al., 2014; Wolfers & Schneider, 2020). The purpose of this study was to examine predictors of information-seeking and information-sharing behaviors about depression and anxiety on social media during the COVID-19 pandemic.

Social media-based information-seeking and information-sharing behaviors can be seen as coping strategies that can help to buffer against stressful and negative life events such as those triggered by the COVID-19 pandemic (Lenz, 1984; Miao et al., 2021; Wolfers & Schneider, 2020). Depression- and anxiety-related information seeking can help make sense of stressful situations and develop coping mechanisms against the stressors themselves; similarly, information sharing or self-disclosure about depression and anxiety can help unburden oneself and provide a sense of relief (Cohen & Wills, 1985; Garfin, 2020). Previous

A part of this project was presented at the 71st Annual Conference of the International Communication Association (ICA), Denver, CO, USA (virtual conference).

✉ Najma Akhther
najakhther@wayne.edu

Pradeep Sopory
dz3594@wayne.edu

¹ Department of Communication, Wayne State University, Detroit, Michigan, USA

² Department of Journalism & Media Studies, Jahangirnagar University, Savar, Dhaka, Bangladesh

studies have suggested that individuals increasingly use social media when they feel anxious and distressed, which can shape their seeking and sharing behavior (Cavazos-Rehg et al., 2016; Eden et al., 2020; Moreno et al., 2011, 2012). Accordingly, this study investigated the influence of people's self-ratings of depression and anxiety on their seeking and sharing behaviors concerning these mental health conditions on social media.

Additionally, previous research has suggested that seeking and sharing activities can prompt receiving informational and emotional supports from peers in one's shared social network (Naslund et al., 2016; Nick et al., 2018; Walther & Boyd, 2002; Zhang, 2017), which can provide psychological resources that can help alleviate depression and anxiety and enhance mental health (Wills & Isasi, 2007). Thus, this study also examined whether the perception of the degree to which social media peers will be supportive influences information seeking and sharing about depression and anxiety on social media. Furthermore, prior studies have noted that information obtained from Internet search engines, visiting websites, and disclosing on social media can provide health benefits (Berry et al., 2017; Montagni et al., 2016; Naslund et al., 2020). Therefore, this study also examined if the perception of such health benefits shapes depression- and anxiety-related seeking and sharing behaviors on social media. As such, this study investigated whether depression self-ratings, anxiety self-ratings, perception of peer support, and perception of health benefits affected seeking and sharing of mental health information on social media.

Review of Literature, Hypotheses, and Research Questions

Health information seeking is a sense-making process that involves searching and receiving health messages, understanding health status, and reducing uncertainty by constructing a social and personal sense of health (Lambert & Loiselle, 2007; Lenz, 1984). Social media mental health information seeking is also part of health information seeking where people seek information, advice, or suggestions by posting questions, asking recommendations, reading posts, learning from stories of others, and receiving news from health organizations and other sources (Aref-Adib et al., 2016; Liu et al., 2016; Wang et al., 2020). Along the same lines, health information sharing is a two-way process where people exchange information by sharing experiences, opinions, suggestions, and answers to questions raised by others (Park et al., 2014). Social media mental health information-sharing activities reference mental health conditions through writing personal stories and messages, posting or re-posting news, uploading pictures, and commenting on posts by others

(Akhther & Tetteh, 2021; Lee & Jin, 2019; Naslund et al., 2014, 2019).

When people seek information and share experiences concerning mental health, this can assist coping through learning about their symptoms and medication use and making sense of their mental health conditions in general (Naslund et al., 2016; Wolfers & Schneider, 2020). Such social media-based coping behaviors can also enable the reciprocal exchange of verbal and nonverbal messages, including emotional appraisals, and informational assistance, and facilitate creating a shared network for peer-to-peer support (Mead et al., 2001; Walther & Boyd, 2002). Such a network allows mutual seeking and sharing of social companionship, emotional, informational, and instrumental support that can offer hope, strength, motivation, and companionship to others with similar concerns thus reducing uncertainty and stress concerning health (Naslund et al., 2014; Repper & Carter, 2011; Seeger et al., 2021), thereby serving as a coping avenue for mental health conditions (Nick et al., 2018; Walther & Boyd, 2002; Wills & Isasi, 2007). This seeking and sharing may depend on people's sense of their mental health conditions and perceptions of their social network.

Depression and Anxiety Self-ratings and Information Seeking and Sharing

The Internet is a source of mental health information that people seek by inputting keywords into search engines (e.g., Google, Yahoo) and then finding and visiting relevant websites (Horgan & Sweeney, 2010; Wang et al., 2020; Younes et al., 2015). People search for information related to symptoms, treatment options, prevalence rates, web-based assessment tests, and peer support (Wetterlin et al., 2014). Several common factors that may serve as predictors of people's information-seeking behavior online include psychological difficulties, past and current history of mental health distress, lifetime major depression or anxiety disorder, lifetime suicidal ideation, and difficulties in accessing mainstream or traditional face-to-face mental health services (Horgan & Sweeney, 2010; Montagni et al., 2016; Wetterlin et al., 2014; Younes et al., 2015). Such mental health conditions can also enhance individuals' social media use behavior and lead to adopting coping strategies (Naslund et al., 2019; Rideout & Fox, 2018). Accordingly, these findings suggest that the self-assessments of depression and anxiety can predict information-seeking behavior on social media. Thus, the study proposes that:

H1: Self-ratings of (a) depression and (b) anxiety will have a relationship with information seeking about mental health on social media.

In addition to information seeking, people with mental health conditions use social media to share their experiences (Moreno et al., 2011, 2012). Content analyses of social media disclosures have shown that people with depressive symptoms are two times more likely to share their experiences on Facebook than those without depressive symptoms, and active social media users are two times more likely than less active users to disclose negative emotions on Facebook (Michikyan, 2019; Zhang, 2017). There are various types of depressive symptoms that people share publicly on social media, including dysfunctional thoughts, depressed mood, loss of interest in activities, lifestyle and social challenges, appetite changes, sleep problems, energy loss, feeling worthless or guilty, decreased concentration, and suicidal ideation (Cavazos-Rehg et al., 2016; Lachmar et al., 2017; Michikyan, 2019; Moreno et al., 2011). Accordingly, these findings suggest that self-assessments of depression and anxiety can predict information-sharing behavior on social media. Thus, this study proposes that:

H2: Self-ratings of (a) depression and (b) anxiety ratings will have a positive relationship with information sharing about mental health on social media.

Perceived Social Media Peer Support and Information Seeking and Sharing

There is a positive association between social media use, social support, and subjective wellbeing (Naslund et al., 2020). Previous research has shown that people who experience mental distress frequently use social media, which can enable them to receive support from the shared network (Moreno et al., 2012; Rideout & Fox, 2018). There are different forms of peer support that people can receive from their social networks, including informational support, emotional support, and companionship (Naslund et al., 2016; Walther & Boyd, 2002). Perceived emotional support can reduce perceived life stress and depression scores (Frison & Eggermont, 2015; Wright et al., 2013). Informational support can help people make decisions for medication use and provide useful information regarding mental resources or care (Naslund et al., 2014, 2019). However, it has not been examined how such perceived peer support for mental health issues may predict information-seeking behavior on social media. Thus, the study asks the following question:

RQ1. Will the perceived health-related social media peer support have a relationship with information seeking about mental health on social media?

There is a positive association between mental health disclosure and peer support on social media, which can serve to alleviate depression and anxiety (Pahayahay & Khalili-Mahani, 2020; Zhang, 2017). For instance, people who receive more

supportive and quality responses from their peers may be more likely to discuss their depressive symptoms publicly on Facebook (Moreno et al., 2011; Zhang, 2017). Besides, support-seeking posts, sensitive self-disclosures, and personal narratives concerning illnesses can facilitate more positive feedback and support (Andalibi et al., 2017; Naslund et al., 2014). Accordingly, people who receive a more supportive response from their peers may be more likely to share their experiences on social media. Thus, the study predicts the following:

H2: Perceived health-related social media peer support will have a positive relationship with information sharing about mental health on social media.

Existing studies have suggested that symptoms of mental health conditions and peer support may influence people's information-sharing behaviors (Moreno et al., 2011; Zhang, 2017). Also, supportive peer communication occurs through self-disclosures concerning mental health, in which negative emotional stories and personal experiences receive supportive information and feedback from peer networks (Andalibi et al., 2017; Prescott et al., 2017). Accordingly, it is important to examine whether depression and anxiety self-ratings and perceived peer support together shape people's information-sharing behavior on social media. Thus, the study asks the following question:

RQ2: Will self-ratings of (a) depression and (b) anxiety and perceived health-related social media peer support have an interaction effect on sharing about mental health on social media?

Perceived Health Benefits of Social Media and Information Seeking and Sharing

Perceived health benefits refer to people's evaluation of benefits associated with social media use for communicating about their health (Li et al., 2018). Perceived benefits can help the decision-making process of whether to adopt certain technologies or services (Lee, 2009). When people believe that the perceived benefits of social media mental health services are significant, they can overcome the detriments associated with service adoption and be more likely to seek and share information concerning their mental health (Li et al., 2018). Previous research has explored the benefits of information seeking about health on the Internet (Horgan & Sweeney, 2010; Montagni et al., 2016; Westerman et al., 2014). These benefits include access to a large amount of health information that is often more than other information sources; convenient place to learn experiences of people with similar health conditions; reduced embarrassment compared to seeking information in person from friends, talking, or a professional; and empowerment through making sense of illness and learning about medication and treatment.

Though social media are considered a potential avenue for mental health information, research has not examined how the perceived benefits of seeking health information may predict information seeking about mental health on social media. Thus, this study asks the following question:

RQ3. Will perceived health benefits of social media have a relationship with information seeking about mental health on social media?

There are health benefits associated with disclosing mental health conditions (Berry et al., 2017; Zhang, 2017). When people share their experiences of mental health problems, they can feel a sense of community that creates a safe space for expression, coping, and empowerment, which facilitates raising awareness, combating stigma, and receiving social support that provides therapeutic relief (Naslund et al., 2014; Zhang, 2017). However, previous literature has mostly identified these benefits through content analyses of mental health disclosures on social media. As such, it is not known whether the perception of anticipated benefits influences information sharing concerning depression and anxiety. Thus, the study asks the following question:

RQ4: Will perceived health benefits of social media have a relationship with information sharing about mental health on social media?

Method

Participants and Recruitment

Participants were from the general population in the USA. The sample ($N = 865$) was 48.1% female (51% male) and 71.2% White (13% Black/African American, 12% Asian), with mean age 33.5 years ($SD = 21.36$; range 18–83). Table 1 shows complete participant characteristics.

After obtaining approval from the university Institutional Review Board, participants were recruited in three ways. First, a snowball sample ($N = 131$) was recruited by posting the study information on social networking sites. Second, a convenience sample of undergraduate students ($N = 104$) was recruited from the research subject pool of the Department of Communication at a public university in the Midwest USA. Participants were recruited from undergraduate courses and received nominal extra credit for their participation. Third, a sample ($N = 630$) was recruited via Amazon's Mechanical Turk (MTurk), which is a crowdsourcing online marketplace that draws participants from a diverse range of human workforces (see Antoun et al., 2016; Hussain & Alhabash, 2021). MTurk participants received \$1.30 compensation for their participation. All data collection was conducted in the time-frame of September–October 2020.

Table 1 Participant characteristics ($N = 865$)

Characteristics	N (%)
Gender	
Female	414 (48.1)
Male	439 (51.0)
Prefer not to say	3 (.30)
Prefer to self-describe	5 (.60)
Missing	4 (.50)
Age (years)	$M = 33.5$; $SD = 21.36$
Race/ethnicity	
White	613 (71.2)
Black or African American	112 (13.0)
American Indian or Alaskan Native	5 (.60)
Asian	103 (12.0)
Native Hawaiian or another Pacific Islander	6 (.70)
Multiple backgrounds	12 (1.40)
Other	10 (1.20)
Missing	4 (.50)
Relationship status	
Single, never married	195 (22.60)
Single, dating	56 (6.50)
Single, in a committed relationship	86 (10.0)
Married	497 (57.70)
Married, but separated	6 (.70)
Divorced	17 (2.00)
Widowed	4 (.50)
Missing	4 (.50)
Household status	
Number of adults 18 years and older	$M = 2.92$; $SD = 1.85$
Number of children 17 years and younger	$M = 2.05$; $SD = 2.07$
Highest level of education	
Some high school	3 (.30)
High school graduate	82 (9.50)
Some college	178 (20.70)
College graduate	440 (51.20)
Graduate or other advanced degree	157 (18.30)
Missing	5 (.60)
Employment	
Employed full-time	598 (69.50)
Employed part-time	160 (18.60)
Unemployed and currently seeking work	34 (4.00)
Unemployed and not currently seeking work	45 (5.20)
Household worker	9 (1.00)
Laid-off awaiting callback	5 (.60)
Retired	9 (1.00)
Missing	5 (.60)
Annual household income	
Less than \$25,000	153 (17.90)
\$25,000–\$50,000	241 (28.10)
\$50,000–\$100,000	362 (42.20)
\$100,000–\$200,000	89 (10.40)
More than \$200,000	12 (1.40)

Table 1 (continued)

Characteristics	N (%)
Missing	8 (.90)
Depression self-ratings (PHQ-9 scale)	
Mild (0–12)	377 (43.60)
Moderate (13–24)	302 (34.90)
Severe (25–36)	186 (21.50)
Anxiety self-ratings (GAD-7 scale)	
Mild (0–8)	321 (37.10)
Moderate (9–18)	312 (36.10)
Severe (19–28)	232 (26.80)
Diagnosed with depression and anxiety	
Yes	361 (41.90)
No	500 (58.10)
Missing	4 (.50)
Current physical health	
Very good	218 (25.20)
Good	406 (46.90)
Generally good	206 (23.80)
Bad	31 (3.60)
Very bad	4 (.50)
Current emotional health	
Very good	172 (19.90)
Good	342 (39.50)
Generally good	243 (28.10)
Bad	94 (10.90)
Very bad	14 (1.60)
COVID-19 personal experience/tested positive	
Yes	211 (24.70)
No	642 (75.30)
Missing	12 (1.40)
COVID-19 social network experience/tested positive	
Yes	420 (49.20)
No	433 (50.80)
Missing	12 (1.40)

Patient Health Questionnaire 9-item (PHQ-9) scale ranges from 0 to 36. Generalized Anxiety Disorder 7-item (GAD-7) scale ranges from 0 to 28

Participants responded to three inclusion–exclusion questions: 18 years of age or older, currently living in the USA, and regular user of at least one social media platform (Facebook, Twitter, Instagram, YouTube, Pinterest, and Reddit). Participants who met all three criteria were included in the sample. Cases were excluded on the following basis: those who responded to less than 70% of the survey questionnaire or took less than 12 min to complete. Additionally, two filtering questions were placed for the MTurk survey to determine whether participants completed the survey attentively or not and cases were removed from those who failed to answer the attention questions correctly. A total of 1043 people participated in the study, of

which 178 cases were removed as noted above, yielding the final sample.

Prior to data collection, a statistical power analysis was conducted using G*Power (Faul et al., 2009). The analysis determined a sample of 550 participants to detect a small effect size of .02 with alpha level = .05, power = .80, and 95% confidence interval in a multiple regression analysis. The sample size, thus, met the required statistical power needed for the study.

Design, Procedure, and Measurement

A cross-sectional online survey was conducted using Qualtrics, a commercial survey platform site. Upon arriving at the survey landing page, participants first consented to the study electronically, next completed the inclusion–exclusion questions, and then proceeded to the questionnaire. Participants were asked to consider a period of the past 6 months for all their answers, which covered the COVID-19 pandemic period.

Social Media Use

Social media use was measured by asking hours of daily use of social media to connect and interact with social networks using Facebook, Twitter, Instagram, YouTube, Pinterest, and Reddit, which are the most popular social media platforms in the USA (Perrin & Anderson, 2019; Smith & Anderson, 2018). Participants used a 12-point scale ranging from 0 to 12 or more hours per day to report their use of each social media platform. The arithmetic mean of the hours for the six platforms was used as the final variable ($M = 3.97$; $SD = 3.77$).

Information Seeking About Mental Health

Three multi-item questions were constructed to measure information-seeking behavior, resulting in three variables, general seeking, topics seeking, and span of seeking. *General seeking* was measured by asking participants how often they used the above six social media platforms to seek or read mental health-related information or advice using a 5-point response option that ranged from 0 = never to 4 = all the time. The arithmetic mean of the scores for the six platforms was used as the final variable ($M = 1.56$; $SD = 1.11$).

Topics seeking was measured using a 12-item scale developed by adapting items from Montagni and colleagues' (2016) Internet information-seeking survey. Participants were asked to report how often they looked for information/advice related to mental health conditions on social media, such as general mental health information, depression, anxiety problems, and bipolar disorder, using a 5-point scale with 0 = never and 4 = all the time. A factor analysis using

principal axis factoring and oblimin rotation extracted a single factor as expected (eigenvalue = 7.85; 65.23% variance explained; Cronbach's $\alpha = .95$). The arithmetic mean of the 12 items was used as the final variable ($M = 1.68$; $SD = 1.01$).

The span of seeking was measured using five statements created regarding depression and anxiety using online information-seeking literature (e.g., Wang et al., 2020; Wetterlin et al., 2014). The statements included “I have looked for information/advice related to different treatment options” and “I have looked for information/advice related to online resources,” and so on. Participants were asked to report whether they looked for information noted in the statements on specific social media platforms and were asked to mark 0 = no and 1 = yes options for each of the six social media platforms separately. A final variable was created by summing the yes responses across the five statements for all the social media (possible range 0–30; found range 0–30; $M = 11.21$, $SD = 9.39$).

Information Sharing About Mental Health

Three multi-item questions were constructed to measure people's information-sharing behavior resulting in three variables, general sharing, topics sharing, and span of sharing. *General sharing* was measured by asking participants how often they used the above six social media platforms to share their personal experiences related to mental health conditions using a 5-point response option that ranged from 0 = never to 4 = all the time. The arithmetic mean of the scores for the six social media platforms was used as the final variable ($M = 1.38$; $SD = 1.22$).

Topics sharing was measured using a 12-item scale developed by adapting items from Montagni et al. (2016) Internet information-seeking survey. Participants were asked to report how often they shared mental health condition-related experiences on social media, such as general mental health information, depression, anxiety, and bipolar disorder, using a 5-point scale with 0 = never to 4 = all the time. A factor analysis using principal axis factoring and oblimin rotation extracted a single factor as expected (eigenvalue = 8.58; 71.54% variance explained; Cronbach's $\alpha = .96$). The arithmetic mean of the 12 items was used as the final variable ($M = 1.54$; $SD = 1.07$).

The span of sharing was measured using seven statements created regarding depression and anxiety, which included “When I feel down or hopeless, I share my thoughts and feelings on social media,” “When I have trouble concentrating on things such as reading, I have shared my thoughts and feelings on social media,” and so on. Participants were asked to report whether they shared information noted in the statements on specific social media platforms and were asked to mark 0 = no and 1 = yes options for each of the six social media platforms separately. A final variable was created by

summing the yes response across the seven statements for all the social media (possible range 0–42; found range 0–42; $M = 13.91$; $SD = 13.03$).

Depression and Anxiety Self-ratings

The clinically validated Patient Health Questionnaire 9-item depression scale (PHQ-9) and the 7-item Generalized Anxiety Disorder scale (GAD-7) were used to assess depression and anxiety. The PHQ-9 and GAD-7 scales are the most frequently used diagnostic self-report scales for screening, diagnosis, and severity assessment of depression and anxiety measures (see Kroenke et al., 2016; Moreno et al., 2011). The PHQ-9 items represent the full range of depression symptoms, and participants were asked to report how much each symptom bothered them over the past 6 months, ranging from 0 = never to 4 = every day. A factor analysis using principal axis factoring and oblimin rotation extracted a single factor as expected (eigenvalue = 6.05; 67.23% explained variance; Cronbach's $\alpha = .94$). The arithmetic mean of the nine items was used for all analyses ($M = 1.69$; $SD = 1.08$). For additional analyses, the responses were summed (possible range 0–36) and then recoded into three depression levels: mild (0–12), moderate (13–24), and severe (25–36).

The GAD-7 included seven items representing the range of anxiety symptoms. Participants were asked to report how much each symptom bothered them over the past 6 months using a scale of 0 = never to 4 = every day. A factor analysis using principal axis factoring and oblimin rotation extracted one factor as expected (eigenvalue = 5.13; 73.23% explained variance; Cronbach's $\alpha = .94$). The arithmetic mean of the seven items was used for all analyses ($M = 1.78$; $SD = 1.12$). For additional analyses, the responses were summed (possible range 0–28) and then recoded into three anxiety levels: mild (0–8), moderate (9–18), and severe (19–28).

Perceived Health-related Social Media Peer Support

A 10-item scale was developed modifying four items from Nick et al.'s (2018) Online Social Support Scale and six items from Li et al. (2018) informational and emotional support questionnaire. The items included “When faced with health difficulties, the people I know on social media are on my side with me,” “When faced with health difficulties, the people I know on social media offer suggestions when I need help,” and so on. The 5-point scale ranged from 1 = strongly disagree, and 5 = strongly agree. A factor analysis using principal axis factoring and oblimin rotation extracted single factor as expected (eigenvalue = 5.72; 57.15% variance explained; Cronbach's $\alpha = .92$). The arithmetic mean of the 10 items was used in all analyses ($M = 3.53$; $SD = .75$).

Perceived Health Benefits of Social Media

A 9-item scale was created using the literature related to the benefits of information-seeking and information-sharing online (e.g., Berry et al., 2017; Montagni et al., 2016; Naslund et al., 2019). The items included “Social media are a convenient place to seek help or suggestions about health,” “Social media provided information about health conditions is easier to understand,” and so on. The 5-point scale ranged from 1 = strongly disagree and 5 = strongly agree. A factor analysis using principal axis factoring and oblimin rotation yielded a single factor (eigenvalue = 4.93; 54.74% variance explained; Cronbach’s $\alpha = .90$). The arithmetic mean of the nine items was used in all analyses ($M = 3.50$; $SD = .80$).

Covariates

Previous studies have noted that age, educational level, employment status, living arrangements, and student status serve as predisposing factors to help-seeking and help-sharing behaviors online (see Horgan & Sweeney, 2010; Michikyan, 2019; Montagni et al., 2016; Wetterlin et al., 2014; Younes et al., 2015). Accordingly, we used sample, age, ethnicity, education, relationship status, employment status, college student status, living with adults 18 years and older, and living with children 17 years and younger as demographic covariates. Additionally, given the context of the study, history of diagnosed mental health conditions, personal experience of COVID-19, and social experience of COVID-19 were used as clinical covariates. Variables that were at the nominal level of measurement were recoded into dummy variables for all analyses.

Data Analysis

We ran six hierarchical multiple regressions to test hypotheses and research questions. Three runs were for the three measures of information seeking, and three runs were for the measures of information sharing. For each run, the variables were entered in sequential blocks, which allows for isolating the contribution of variables entered in the later blocks by controlling for the effects of variables in the previous blocks. The first block included demographic covariates and the second block included clinical covariates. The third block consisted of the hypothesized predictors, depression, anxiety, perceived peer support, and perceived health benefits. The fourth block was used to enter the interaction terms between the hypothesized predictors, depression, anxiety, and perceived peer support. All predictors were centered on their means to mitigate any issues with multicollinearity among the variables.

Results

Preliminary Analyses

Self-ratings of depression and anxiety showed that participants experienced the full range of mild, moderate, and severe symptoms during the COVID-19 pandemic. As shown in Table 1, 43.6% of respondents met the criteria for mild, 34.9% for moderate, and 21.5% for severe depression. For anxiety, 37.1% of respondents met the criteria for mild, 36.1% for moderate, and 26.8% for severe anxiety. Additionally, around 41% of the sample reported a history of medical diagnosis of depression and anxiety. A personal experience with COVID-19 was reported by 24.7% of the sample.

Descriptive statistics of social media use showed that participants used YouTube ($M = 4.68$, $SD = 3.96$), Instagram ($M = 4.24$, $SD = 4.03$), and Facebook ($M = 4.16$, $SD = 3.81$) the most, followed by Twitter ($M = 3.76$, $SD = 4.01$), Pinterest ($M = 3.50$, $SD = 4.27$), and Reddit ($M = 3.50$, $SD = 4.26$).

In addition, we ran zero-order correlations (see Table 2) and found significant positive associations between all predictor and outcome variables. For instance, depression self-ratings ($r = .67$, $p < .01$; $r = .70$, $p < .01$), anxiety self-ratings ($r = .57$, $p < .01$; $r = .60$, $p < .01$), perceived health-related social media peer support ($r = .36$, $p < .01$; $r = .41$, $p < .01$), and perceived health benefits of social media ($r = .48$, $p < .01$; $r = .51$, $p < .01$) showed significant positive association for general seeking and general sharing, respectively.

Information Seeking About Mental Health

H1, RQ1, and RQ3 examined the relationship between depression, anxiety, perceived peer support, and perceived health benefits, and information seeking about mental health on social media during COVID-19.

General information seeking was significantly predicted by the proposed model. Results indicated the final block 3 model significantly explained the variance in the outcome variable, $R^2(\text{adjusted}) = .62$, $\Delta R^2 = .14$, $\Delta F(19, 769) = 69.22$, $p < .001$. However, the results for the individual coefficients showed significance only for depression ($t = 7.58$, $\beta = .42$, $p < .001$) and perceived health benefits ($t = 4.70$, $\beta = .15$, $p < .001$). The findings, thus, showed a significant positive relationship for depression and perceived health benefits with mental health-related general information seeking. Conversely, no significant relationship was found between anxiety and perceived peer support.

Topics information seeking was significantly predicted by the proposed model. Results indicated the final block 3 model significantly explained the variance in

Table 2 Descriptive statistics and zero-order correlations for study variables ($N=865$)

Variables	<i>M</i>	<i>SD</i>	Pearson <i>r</i> correlations											
			1	2	3	4	5	6	7	8	9			
1 Depression ratings	1.69	1.08												
2 Anxiety ratings	1.78	1.12	.89**											
3 Peer support	3.53	0.75	.29**	.26**										
4 Health benefits	3.5	0.8	.40**	.33**	.65**									
5 General seeking	1.56	1.11	.67**	.57**	.36**	.48**								
6 Topics seeking	1.67	1.01	.70**	.68**	.29**	.37**	.67**							
7 Span of seeking	11.21	9.39	.59**	.48**	.31**	.43**	.79**	.55**						
8 General sharing	1.38	1.22	.70**	.60**	.41**	.51**	.89**	.66**	.78**					
9 Topics sharing	1.54	1.07	.72**	.68**	.36**	.40**	.71**	.86**	.61**	.77**				
10 Span of sharing	13.91	13.03	.63**	.52**	.33**	.42**	.79**	.57**	.87**	.83**	.66**			

* $\leq .05$; ** $\leq .01$

the outcome variable, $R^2(\text{adjusted}) = .63$, $\Delta R^2 = .26$, $\Delta F(19, 815) = 75.79$, $p < .001$. The results for the individual coefficients showed significance for depression ($t = 8.48$, $\beta = .44$, $p < .001$), anxiety ($t = 3.10$, $\beta = .15$, $p < .002$), and perceived health benefits ($t = 3.59$, $\beta = .11$, $p < .001$). The findings, thus, showed a significant positive relationship for depression, anxiety, and perceived health benefits with topics information seeking. No significant relationship was found for peer support.

The *span of seeking* was significantly predicted by the proposed model. Results indicated the final block 3 model significantly explained the variance in the outcome variable, $R^2(\text{adjusted}) = .55$, $\Delta R^2 = .09$, $\Delta F(19, 805) = 53.46$, $p < .001$. The results for the individual coefficients showed significance only for depression ($t = 6.48$, $\beta = .37$, $p < .001$) and perceived health benefits ($t = 4.23$, $\beta = .14$, $p < .001$). The findings, thus, showed a significant positive relationship for depression and perceived health benefits with the span of information seeking. No significant relationship was found for perceived peer support.

Therefore, the results showed that H1 was partially and RQ3 was fully supported for all three outcome variables. However, no significant results were found for RQ1. Table 3 shows detailed results of the regression tests.

Information Sharing About Mental Health

H2, H3, and RQ4 examined the relationship between depression, anxiety, perceived peer support, and perceived health benefits and information sharing about mental health on social media. In addition to these, RQ2 addressed the interaction effect of depression, anxiety, and perceived peer support on information sharing.

General information sharing was significantly predicted by the proposed model. Findings showed both the block 3 model, $R^2(\text{adjusted}) = .70$, $\Delta R^2 = .14$, ΔF

(19, 779) = 98.50, $p < .001$, and the full block 4 model, $R^2(\text{adjusted}) = .71$, $\Delta R^2 = .01$, $\Delta F(21, 777) = 92.36$, $p < .001$, significantly explained the variance in the outcome variable. However, the results for the individual coefficients showed significance only for depression ($t = 7.52$, $\beta = .36$, $p < .001$), perceived peer support ($t = 2.02$, $\beta = .05$, $p < .04$), and perceived health benefits ($t = 4.88$, $\beta = .14$, $p < .001$). The findings, thus, showed a significant positive relationship for depression, perceived peer support, and perceived health benefits with general information sharing. Additionally, as noted above, the amount of additional variance explained by the fourth block testing the interaction effect was significant. However, no significant effect was found for the interaction coefficients.

Topics information sharing was significantly predicted by the proposed model. Findings indicated both the block 3 model, $R^2(\text{adjusted}) = .66$, $\Delta R^2 = .23$, $F(19, 816) = 84.73$, $p < .001$, and the full block 4 model, $R^2(\text{adjusted}) = .67$, $\Delta R^2 = .01$, $\Delta F(21, 814) = 81.38$, $p < .001$, significantly explained the variance in the outcome variable. The results for the individual coefficients showed significance for depression ($t = 8.69$, $\beta = .43$, $p < .001$), anxiety ($t = 2.37$, $\beta = .11$, $p < .02$), perceived peer support ($t = 4.34$, $\beta = .12$, $p < .001$), and perceived health benefits ($t = 2.72$, $\beta = .08$, $p < .01$). The findings, thus, showed a significant positive relationship for depression, anxiety, perceived peer support, and perceived health benefits with topics information sharing. Additionally, as noted above, the amount of additional variance explained by the fourth block testing the interaction effect was significant. However, the results for the interaction coefficients showed significant positive relationship only for anxiety and perceived peer support ($t = 2.44$, $\beta = .12$, $p < .02$) with topics information sharing. No significant interaction effect was found for depression and perceived peer support.

Span of sharing was significantly predicted by the proposed model. Results showed both the block 3 model,

Table 3 H1, RQ1, RQ3: summary of hierarchical multiple regression analysis for depression ratings, anxiety ratings, perceived health-related social media peer support, and perceived health benefits of social media on information seeking about mental health

Predictor variables and blocks	General seeking	Topics seeking	Span of seeking
	β	β	β
Block 1: demographic covariates			
Sample (student) dummy	.33***	-.12**	.41***
Sample (MTurk) dummy	.06	.05	.09*
Age	-.09***	-.05	-.07**
Race/ethnicity (black) dummy	.05	.08**	-.03*
Race/ethnicity (Asian) dummy	-.06**	-.07*	-.07*
Race/ethnicity (others) dummy	-.05	.05	-.06*
Education (college graduate and advanced degree) dummy	.09**	.07	.08**
Relationship status (married) dummy	.14***	.11***	.19***
Employment status (employed) dummy	.09*	.02	.05
College student (yes) dummy	.01	.06	.08*
Number of adults 18 years and older	.17***	.18***	.13***
Number of children 17 years and younger	.29***	.38***	.24***
R^2	.48	.36	.46
Adj. R^2	.47	.35	.45
F	59.64***	38.24***	57.09***
Block 2: clinical covariates			
Sample (student) dummy	.31***	-.15***	.39***
Sample (MTurk) dummy	.06	.06	.10**
Age	-.09***	-.05	-.07*
Race/ethnicity (Black) dummy	.05	.09*	-.02**
Race/ethnicity (Asian) dummy	-.06*	-.06*	-.70**
Race/ethnicity (others) dummy	-.05	-.05	-.07**
Education (college graduate and advanced degree) dummy	.08**	.07	.08*
Relationship status (married) dummy	.13***	.10*	.18***
Employment status (employed) dummy	.08*	.02	.05
College student (yes) dummy	-.02	.02	.05
Number of adults 18 years and older	.17***	.18***	.13***
Number of children 17 years and younger	.25***	.31***	.19***
Diagnosed with depression and anxiety (yes) dummy	.01	.10***	.02
Personal experience/tested positive COVID-19 (yes) dummy	.12***	.12***	.11***
Social experience/tested positive COVID-19 (yes) dummy	-.02	-.01	.03
R^2	.49	.38	.47
Adj. R^2	.48	.37	.46
ΔR^2	.009	.02	.01
ΔF	49.19***	33.59***	47.87***
Block 3: hypothesized predictors			
Sample (student) dummy	.10***	-.28***	.29***
Sample (MTurk) dummy	.07*	.06	.10**
Age	-.07**	-.01	-.05
Race/ethnicity (Black) dummy	.03	.07*	-.04
Race/ethnicity (Asian) dummy	-.05	-.03	-.06*
Race/ethnicity (Others) dummy	-.02	-.01	-.05*
Education (college graduate and advanced degree) dummy	.04	.01	.05
Relationship status (married) dummy	.10***	.07*	.15***
Employment status (employed) dummy	.09***	.04	.06*
College student (yes) dummy	-.04	-.01	.04
Number of adults 18 years and older	.06	.04	.05

Table 3 (continued)

Predictor variables and blocks	General seeking	Topics seeking	Span of seeking
	β	β	β
Number of children 17 years and younger	.16***	.17***	.11**
Diagnosed with depression and anxiety (yes) dummy	-.05*	.00	-.03
Personal experience/tested positive COVID-19 (yes) dummy	.08**	.08**	.09*
Social experience/tested positive COVID-19 (yes) dummy	-.02	-.01	.03
Depression self-ratings	.42***	.44***	.37***
Anxiety self-ratings	-.03	.15***	-.08
Perceived peer support	.02	.04	-.02
Perceived health benefits	.15***	.11***	.14***
R^2	.63	.64	.56
Adj. R^2	.62	.63	.55
ΔR^2	.14	.26	.09
ΔF	69.22***	75.79***	53.46**

Variables were entered in three blocks for the hierarchical regression, with demographic covariates in the first block, clinical covariates in the second block, and hypothesized predictors in the third block. Reference groups for dummy variables were as follows: sample was snowball; race/ethnicity was White; education was other educational levels; relationship status was unmarried and others; employment status was unemployed; college student status was no; diagnosed with depression and anxiety was no; personal experience of COVID-19 was no; and social experience of COVID-19 was no

* $p < .05$; ** $p < .01$; *** $p < .001$

R^2 (adjusted) = .61, ΔR^2 = .09, ΔF (19, 809) = 69.50, $p < .001$, and the full block 4 model, R^2 (adjusted) = .61, ΔR^2 = .00, ΔF (21, 807) = 62.81, $p < .001$, significantly explained the variance in the outcome variable. However, the results for the individual coefficients showed significance only for depression ($t = 7.02$, $\beta = .38$, $p < .001$) and perceived health benefits ($t = 2.72$, $\beta = .08$, $p < .01$). The findings, thus, showed a significant positive relationship for depression and perceived health benefits with span of information sharing. Additionally, as noted above, the amount of additional variance explained by the fourth block testing the interaction effect was significant. However, no significant effect was found for the individual interaction coefficient.

Therefore, the results showed that H2, H3, and RQ2 were partially and RQ4 was fully supported for all three outcome variables. Table 4 includes detailed results of the regression tests.

Covariate Analysis

Findings related to participant COVID-19 personal experience showed that it significantly predicted information-seeking and information-sharing behaviors about mental health on social media. Specifically, individual coefficients (see final blocks Tables 3 and 4) showed that personal experience of being tested positive for COVID-19 was positively associated with general seeking ($t = 2.82$, $\beta = .08$, $p < .01$), topics seeking ($t = 2.67$, $\beta = .08$), span of seeking ($t = 2.85$, $\beta = .09$, $p < .004$), as well as general sharing ($t = 2.41$, $\beta = .06$, $p < .02$), topics sharing ($t = 3.97$, $\beta = .11$, $p < .001$), span of

sharing ($t = 4.96$, $\beta = .15$, $p < .001$). In contrast, social experience of being tested positive for COVID-19 was not a significant predictor of information seeking and information sharing about mental health on social media.

Additional Analyses

Additional analyses were conducted for overall social media use and span of seeking and sharing. A two-way factorial analysis of variance was conducted to see whether level of depression and anxiety (mild, moderate, and severe) influenced amount of social media use. Findings showed significant main effects for both level of depression, F (2, 856) = 8.59, $p < .001$, partial $\eta^2 = .02$, and level of anxiety, F (2, 856) = 4.88, $p < .01$, partial $\eta^2 = .01$. The results showed that participants with severe levels of depression used more social media ($M = 7.31$; $SD = 3.92$) than moderate ($M = 4.69$; $SD = 3.39$) and mild ($M = 1.77$; $SD = 2.24$) levels; anxiety showed the same pattern, with severe level having the highest social media use ($M = 6.61$; $SD = 4.17$) relative to moderate ($M = 4.26$; $SD = 3.35$) and mild ($M = 1.81$; $SD = 2.25$) levels. The results also showed an interaction effect of depression and anxiety levels, F (4, 856) = 7.68, $p < .001$, partial $\eta^2 = .04$. An examination of means showed that the highest social media use was by participants with severe levels of both depression and anxiety ($M = 7.62$; $SD = 3.88$).

To investigate the differences between Facebook, Twitter, Instagram, YouTube, Pinterest, and Reddit, post hoc analyses were conducted for span of seeking and sharing. The descriptive statistics for span of seeking showed the

Table 4 H2, H3, RQ2, RQ4: summary of hierarchical multiple regression analysis for depression ratings, anxiety ratings, perceived health-related social media peer support, and perceived health benefits of social media on information sharing about mental health

Predictor variables and blocks	General sharing β	Topics sharing β	Span of sharing β
Block 1: demographic covariates			
Sample (student) dummy	.36***	-.09*	.38***
Sample (MTurk) dummy	.06	.01	.03
Age	-.06*	-.06*	-.05
Race/ethnicity (black) dummy	.03	.04*	-.04
Race/ethnicity (Asian) dummy	-.06*	-.09*	-.08**
Race/ethnicity (others) dummy	-.03	-.05*	-.03
Education (college graduate and advanced degree) dummy	.13***	.10*	.08*
Relationship status (married) dummy	.18***	.15***	.20***
Employment status (employed) dummy	.08**	.06*	.07**
College student (yes) dummy	.02	.05	.09**
Number of adults 18 years and older	.21***	.19***	.17***
Number of children 17 years and younger	.27***	.38***	.23***
R^2	.56	.40	.50
Adj. R^2	.55	.40	.50
F	81.70***	46.48***	68.95***
Block 2: clinical covariates			
Sample (student) dummy	.34***	-.12*	.35***
Sample (MTurk) dummy	.07*	.03	.04
Age	-.06*	-.06	-.05
Race/ethnicity (Black) dummy	.03	.06*	-.03
Race/ethnicity (Asian) dummy	-.06*	-.08**	-.08*
Race/ethnicity (others) dummy	-.04	-.06*	-.03
Education (college graduate and advanced degree) dummy	.12***	.10*	.07*
Relationship status (married) dummy	.17***	.14*	.18***
Employment status (employed) dummy	.07**	.06*	.06*
College student (yes) dummy	-.01	-.00	.05
Number of adults 18 years and older	.20***	.20***	.17***
Number of children 17 years and younger	.23***	.30***	.15***
Diagnosed with depression and anxiety (yes) dummy	.01	.09*	.01
Personal experience/tested positive COVID-19 (yes) dummy	.10***	.16***	.17***
Social experience/tested positive COVID-19 (yes) dummy	.03	.01	.03
R^2	.57	.44	.53
Adj. R^2	.56	.43	.52
ΔR^2	.01	.03	.03
ΔF	68.35***	42.09***	61.05***
Block 3: hypothesized predictors			
Sample (student) dummy	.23***	-.25***	.26***
Sample (MTurk) dummy	.07**	.03	.04
Age	-.04	-.02	-.03
Race/ethnicity (Black) dummy	.01	.04	-.04
Race/ethnicity (Asian) dummy	-.04	-.05*	-.07**
Race/ethnicity (others) dummy	-.01	-.02	-.02
Education (college graduate and advanced degree) dummy	.08***	.04	.04
Relationship status (married) dummy	.13***	.09***	.15***
Employment status (employed) dummy	.07***	.08***	.07*
College student (yes) dummy	-.03	-.02	.04
Number of adults 18 years and older	.10***	.06*	.08*

Table 4 (continued)

Predictor variables and blocks	General sharing	Topics sharing	Span of sharing
	β	β	β
Number of children 17 years and younger	.12***	.16***	.07
Diagnosed with depression and anxiety (yes) dummy	-.05*	-.00	-.04
Personal experience/tested positive COVID-19 (yes) dummy	.07***	.12***	.15***
Social experience/tested positive COVID-19 (yes) dummy	.03	.00	.03
Depression self-ratings	.38***	.45***	.38***
Anxiety self-ratings	.01	.09*	-.06
Perceived peer support	.04	.10***	.04
Perceived health benefits	.13***	.07**	.08**
R^2	.71	.66	.62
Adj. R^2	.70	.66	.61
ΔR^2	.14	.23	.09
ΔF	98.50***	85.73***	69.5
Block 4: hypothesized interactions between predictors			
Sample (student) dummy	.22***	-.26***	.26***
Sample (MTurk) dummy	.06*	.02	.04
Age	-.04	-.02	-.03
Race/ethnicity (Black) dummy	.01	.03	-.04
Race/ethnicity (Asian) dummy	-.04*	-.05*	-.07**
Race/ethnicity (others) dummy	-.01	-.02	-.02
Education (college graduate and advanced degree) dummy	.07*	.04	.04
Relationship status (married) dummy	.13***	.10***	.15***
Employment status (employed) dummy	.07***	.07*	.07*
College student (yes) dummy	-.02	-.02	.04
Number of adults 18 years and older	.09*	.05	.08*
Number of children 17 years and younger	.12***	.16***	.07
Diagnosed with depression or anxiety (yes) dummy	-.04*	.00	-.03
Personal experience/tested positive COVID-19 (yes) dummy	.06*	.11***	.15***
Social experience/tested positive COVID-19 (yes) dummy	.03	.01	.03
Depression self-ratings	.36***	.43***	.38***
Anxiety self-ratings	.02	.11*	-.06
Perceived peer support	.05*	.12***	.04
Perceived health benefits	.14***	.08**	.08**
Depression self-ratings \times perceived peer support	.01	.01	-.02
Anxiety self-ratings \times perceived peer support	.09	.12**	.04
R^2	.71	.68	.62
Adj. R^2	.71	.67	.61
ΔR^2	.01	.01	.00
ΔF	92.36***	81.28***	62.81***

Variables were entered in four blocks for the hierarchical regression, with demographic covariates in the first block, clinical covariates in the second block, hypothesized predictors in the third block; and hypothesized interactions among predictors in the fourth block. Reference groups for dummy variables were as follows: sample was snowball; race/ethnicity was White; education was other educational levels; relationship status was unmarried and others; employment status was unemployed; college student status was no; diagnosed with depression and anxiety was no; personal experience of COVID-19 was no; and social experience of COVID-19 was no

* $p < .05$; ** $p < .01$; *** $p < .001$

following pattern (high to low) across the six social media: YouTube ($M = 2.20$; $SD = 1.87$), Facebook ($M = 2.11$; $SD = 1.98$), Instagram ($M = 1.91$; $SD = 1.90$), Twitter ($M = 1.86$; $SD = 1.88$), Reddit ($M = 1.62$; $SD = 1.83$), and

Pinterest ($M = 1.46$; $SD = 1.75$). In contrast, span of sharing showed a different pattern across the six social media: Facebook ($M = 2.80$; $SD = 2.62$), Instagram ($M = 2.53$; $SD = 2.55$), Twitter ($M = 2.45$; $SD = 2.54$), YouTube

($M = 2.16$; $SD = 2.52$), Reddit ($M = 2.02$; $SD = 2.45$), and Pinterest ($M = 1.88$; $SD = 2.37$). These results showed that participants used YouTube, Facebook, and Instagram the most for information seeking, while Facebook, Instagram, and Twitter were used the most for information sharing.

To further examine the above patterns, two mixed between-subjects, and repeated-measures ANOVA were run, with the span of information seeking and sharing across six social media as the within-subject factors and level of depression and anxiety as the between-subject factors. Using Greenhouse–Geisser correction, results showed that mental health–related span of information seeking differed significantly across the six-social media, $F(4.35, 3663.288) = 49.26$, $p < .001$. Similarly, mental health–related span of information sharing was also statistically significant across the six-social media, $F(4.35, 3663.288) = 49.26$, $p < .001$.

Discussion

This study examined mental health–related information seeking and sharing behaviors on social media during the ongoing COVID-19 pandemic. The PHQ-9 and GAD-7 self-ratings showed that almost one-third of the participants met the criteria for moderate to severe depression and anxiety. Participants with severe depression and anxiety were more likely to use social media than people with moderate and mild depression and anxiety, with the most use of YouTube, Instagram, and Facebook.

There were several other findings of interest. First, there was a significant positive association for depression self-ratings with mental health–related general seeking, topics seeking, and span of seeking across social media. Anxiety self-ratings showed a significant positive relationship only for topics seeking on social media. These findings fit with the studies showing information seeking by using Internet search engines and visiting mental health–related websites (Montagni et al., 2016; Wetterlin et al., 2014) and are extended to social media. Consistent with results for information seeking, there was also a significant positive relationship for depression self-ratings with mental health–related general sharing, topics sharing, and span of sharing. Anxiety self-ratings showed a significant positive relationship only for topics information sharing. The span of sharing also indicated that people share experiences when they feel stressed, depressed, anxious, and experience problems with sleeping and overall motivations. These findings are consistent with content analyses of depression disclosures on Facebook and Twitter that have identified various symptoms that people disclose through their social media posts (Cavazos-Rehg et al., 2016; Moreno et al., 2011).

Second, perceived peer support was not a significant predictor of information seeking about depression and anxiety on social media. Previous studies have identified stigma as a major deterrent of help seeking toward mental health (see Clement et al., 2015; Corrigan et al., 2014). The non-significant result may be because people may not want to directly seek information on social media by asking questions about their mental health conditions. In contrast, there was a significant positive relationship between perceived peer support and information sharing about mental health conditions on social media. This finding fits with previous research that shows perceived peer support is associated with negative emotional venting and depression disclosures on social media (Naslund et al., 2014; Zhang, 2017). Recent studies have shown people increased social media consumption and their strategic use of the media for coping as the COVID-19 pandemic developed, which also helped them to obtain both informational and emotional supports from shared social networks (Eden et al., 2020; Garfin, 2020). Such psychological resources can serve as a buffer against depression and anxiety (Wills & Isasi, 2007).

Third, there was a significant positive association between perceived health benefits of social media and information seeking and sharing about mental health on social media. There are various types of health benefits of social media whose perceptions can influence people's seeking and sharing behavior related to mental health. For example, social media can be used to communicate with people with similar mental health conditions and learn about their real experiences, which helps to reduce loneliness and provide a sense of companionship that can reduce the stigma of mental health problems (Naslund et al., 2014, 2016). Similarly, sharing of mental health experiences allows receiving useful information and suggestions from a shared peer network. Sharing of negative emotional stories and personal experiences on social media is related to the emotional support that can provide therapeutic outcomes (Berry et al., 2017). Such perceived health benefits can facilitate adopting self-management strategies such as information seeking and sharing, and these coping behaviors can raise awareness and combat stigma surrounding mental health conditions and help seeking.

Fourth, there was a significant interaction effect of anxiety self-ratings and perceived peer support on topics of information sharing. Previous studies have also shown that people with mental health conditions are more likely to share their experiences than others (Michikyan, 2019; Moreno et al., 2011), in which negative emotional stories and personal experiences help to receive informational and emotional supports from shared peer networks (Andalibi et al., 2017; Prescott et al., 2017). Therefore, having symptoms of anxiety and perceived peer support may facilitate sharing

illness experiences that ultimately contribute to coping with mental health conditions.

In addition, there was a significant positive relationship between personal experience of being tested positive for COVID-19 and information seeking and sharing behaviors about mental health on social media. These are consistent with recent studies that indicate an association between COVID-19 stressors and psychological distress (Czeisler et al., 2020). Conversely, social experience of being tested positive for COVID-19 was not a statistically significant predictor for seeking and sharing mental health-related information on social media. Such findings indicate that those who are exposed to the virus may develop elevated psychological distress which leads them to adopt these coping behaviors.

Theoretical and Practical Implications

The findings contribute to conceptualizing mental health-related information seeking and sharing in the context of social media and understanding its utility as a coping tool. Findings for information seeking and sharing may be seen as linked with problem-focused and emotion-focused coping strategies via Lazarus and Folkman's (1984) transactional model of stress and coping as well as media use for coping (Wolfers & Schneider, 2020). Problem-focused coping requires behavioral efforts that can help to alter stressful situations. Information seeking on social media can help to learn about symptoms and make sense of a situation, which can guide protective actions. Similarly, emotion-focused coping requires affective responses, and information sharing or self-disclosure about depression and anxiety can help unburden oneself to provide a sense of catharsis (Zhang, 2017). Also, this study focused on social media as a shared peer network that can be used as a potential place for seeking and sharing psychological resources, including informational and emotional peer supports, which are essential to buffer against mental health conditions (Wills & Isasi, 2007). In addition, social media-based seeking and sharing behaviors can serve as stigma management strategies (e.g., Meisenbach, 2010) toward mental health.

The study findings also provide practical implications for social media-based mental health interventions. Health professionals and clinicians may wish to note that depression relative to anxiety predicted more information seeking and sharing, which can guide in designing of mental health interventions by providing contextualized and tailored information related to mental health conditions for specific target groups. Also, because the perception of peer support was not significant, peer support interventions will need to be carefully designed, perhaps by featuring peers with several points of similarity in addition to mental health conditions

to promote a positive attitude toward help seeking and sharing behaviors. Such interventions can facilitate reducing the stigma associated with mental health-related sharing and help-seeking behaviors.

Limitations and Future Directions

There are some limitations to this study. The sample was selected from the general population using convenience and snowball, rather than random, sampling. As such, the findings of the study may not be generalizable to the entire US population. Similarly, the sample included only those who reported themselves as regular users of social media. As such, the findings may not be representative of those who use social media but not regularly. Also, the cross-sectional nature of this survey only allowed examination of associations among variables, whereas a longitudinal survey could have determined causal relationships between factors of interest and mental health-related information seeking and sharing behaviors.

Despite these limitations, the study lends itself to some suggestions for future research. Future studies can investigate how information seeking and sharing behaviors contribute to the stigma management communication surrounding mental health and how stigma predicts these social media-based coping behaviors. Future studies can also examine whether perceptions of different types of social media-derived peer support, especially informational and emotional supports from peer networks, operate similarly or differently to predict social media seeking and sharing behaviors. Additionally, the social and health changes due to the COVID-19 pandemic have increased people's social media consumption behaviors and the effects of this changed social media use can be both positive and negative for mental health. Therefore, the use of this variable for a longitudinal study can bring new insights into mental health and social media use research.

Conclusion

This study investigated social media as a tool of mental health-related information seeking and information sharing that often serves as coping strategies for depression and anxiety. Overall findings indicated that self-ratings of depression and anxiety, perceived peer support, and perceived benefits of communicating about health on social media predicted seeking and sharing behaviors about mental health during the COVID-19 pandemic. Findings suggest that social media can be a potential site for accessing mental health information and delivering mental health services tailored to people with specific mental health conditions.

Acknowledgements This study is based on the first author's M.A. thesis conducted under the supervision of the second author.

Funding The study was supported by funds from the Department of Communication and the Graduate School of Wayne State University.

Declarations

Conflict of Interest The authors declare no competing interests.

References

- Akhther, N., Tetteh, D. (2021). Global mediated death and emotion: Parasocial grieving—Mourning #stephenhawking on Twitter. *OMEGA - Journal of Death and Dying*, 1–20. <https://doi.org/10.1177/00302228211014775>
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author. <https://doi.org/10.1176/appi.books.9780890425596>
- Andalibi, N., Ozturk, P., & Forte, A. (2017, February). Sensitive self-disclosures, responses, and social support on Instagram: The case of # depression. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing*, (pp.1485–1500). <https://doi.org/10.1145/2998181.2998243>
- Antoun, C., Zhang, C., Conrad, F. G., & Schober, M. F. (2016). Comparisons of online recruitment strategies for convenience samples: Craigslist, Google AdWords, Facebook, and Amazon Mechanical Turk. *Field Methods*, 28(3), 231–246. <https://doi.org/10.1177/1525822X15603149>
- Aref-Adib, G., O'Hanlon, P., Fullarton, K., Morant, N., Sommerlad, A., Johnson, S., & Osborn, D. (2016). A qualitative study of online mental health information-seeking behavior by those with psychosis. *BMC Psychiatry*, 16(1), 1–10. <https://doi.org/10.1186/s12888-016-0952-0>
- Berry, N., Lobban, F., Belousov, M., Emsley, R., Nenadic, G., & Bucci, S. (2017). #WhyWeTweetMH: Understanding why people use Twitter to discuss mental health problems. *Journal of Medical Internet Research*, 19(4), e107. <https://doi.org/10.2196/jmir.6173>
- Boyd, D. M., & Ellison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230. <https://doi.org/10.1111/j.1083-6101.2007.00393.x>
- Cavazos-Rehg, P. A., Krauss, M. J., Sowles, S., Connolly, S., Rosas, C., Bharadwaj, M., & Bierut, L. J. (2016). A content analysis of depression-related tweets. *Computers in Human Behavior*, 54, 351–357. <https://doi.org/10.1016/j.chb.2015.08.023>
- Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüschi, N., Brown, J. S. L., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine*, 45(1), 11–27. <https://doi.org/10.1017/S0033291714000129>
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357. <https://doi.org/10.1037/0033-2909.98.2.310>
- Corrigan, P. W., Druss, B. G., & Perlick, D. A. (2014). The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest*, 15(2), 37–70. <https://doi.org/10.1177/1529100614531398>
- Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., ... & Czeisler, C. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic—United States, June 24–30, 2020. *Morbidity and Mortality Weekly Report*, 69(32), 1049. <https://doi.org/10.15585/mmwr.mm6932a1>
- Eden, A. L., Johnson, B. K., Reinecke, L., & Grady, S. (2020). Media for coping during COVID-19 social distancing: Stress, anxiety, and psychological well-being. *Frontiers in Psychology*, 11, 33–88. <https://doi.org/10.3389/fpsyg.2020.577639>
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Frison, E., & Eggermont, S. (2015). The impact of daily stress on adolescents' depressed mood: The role of social support seeking through Facebook. *Computers in Human Behavior*, 44, 315–325. <https://doi.org/10.1016/j.chb.2014.11.070>
- Garfin, D. R. (2020). Technology as a coping tool during the coronavirus disease 2019 (COVID-19) pandemic: Implications and recommendations. *Stress and Health*, 36(4), 555–559. <https://doi.org/10.1002/smi.297>
- Horgan, A., & Sweeney, J. (2010). Young students' use of the Internet for mental health information and support. *Journal of Psychiatric and Mental Health Nursing*, 17(2), 117–123. <https://doi.org/10.1111/j.1365-2850.2009.01497.x>
- Hussain, S. A., & Alhabash, S. (2021). Nostalgic emotional valence and its effects on help-seeking in depression. An application of the theory of planned behavior. *Health Communication*, 36(13), 1731–1742. <https://doi.org/10.1080/10410236.2020.1794549>
- Kroenke, K., Wu, J., Yu, Z., Bair, M. J., Kean, J., Stump, T., & Monahan, P. O. (2016). Patient health questionnaire anxiety and depression scale: Initial validation in three clinical trials. *Psychosomatic Medicine*, 78(6), 716–727. <https://doi.org/10.1097/PSY.0000000000000322>
- Lambert, S. D., & Loiselle, C. G. (2007). Health information-seeking behavior. *Qualitative Health Research*, 17(8), 1006–1019. <https://doi.org/10.1177/1049732307305199>
- Lachmar, E. M., Wittenborn, A. K., Bogen, K. W., & McCauley, H. L. (2017). #MyDepressionLooksLike: Examining public discourse about depression on Twitter. *JMIR Mental Health*, 4(4), e43. <https://doi.org/10.2196/mental.8141>
- Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping (pp. 150–153). Springer.
- Lee, M. (2009). Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130–141. <https://doi.org/10.1016/j.elerap.2008.11.006>
- Lee, Y. I., & Jin, Y. (2019). Crisis information seeking and sharing (CISS): Scale development for measuring publics' communicative behavior in social-mediated public health crises. *Journal of International Crisis and Risk Communication Research*, 2(1), 2. <https://doi.org/10.30658/jicrcr.2.1.2>
- Lenz, E. R. (1984). Information seeking: A component of client decisions and health behavior. *Advances in Nursing Science*, 6(3), 58–72. <https://doi.org/10.1097/00012272-198404000-00010>
- Li, Y., Wang, X., Lin, X., & Hajli, M. (2018). Seeking and sharing health information on social media: A net valence model and cross-cultural comparison. *Technological Forecasting & Social Change*, 126, 28–40. <https://doi.org/10.1016/j.techfore.2016.07.021>
- Liu, B. F., Fraustino, J. D., & Jin, Y. (2016). Social media use during disasters: How information form and source influence intended behavioral responses. *Communication Research*, 43(5), 626–646. <https://doi.org/10.1177/0093650214565917>
- Liu, B. F., Shi, D., Lim, J. R., Islam, K., Edwards, A. L., & Seeger, M. (2021). When crises hit home: How US higher education leaders navigate values during uncertain times. *Journal of Business Ethics*, 1–16. <https://doi.org/10.1007/s10551-021-04820-5>
- McCance-Katz, E. F. (2019). The national survey on drug use and health: 2017. *Substance Abuse and Mental Health Services Administration*. <https://www.samhsa.gov/data/sites/default/files/nsduh-ppt-09-2018.pdf>. Accessed May, 7.

- Mead, S., Hilton, D., & Curtis, L. (2001). Peer support: A theoretical perspective. *Psychiatric Rehabilitation Journal*, 25, 134–141. <https://doi.org/10.1037/h0095032>
- Meisenbach, R. J. (2010). Stigma management communication: A theory and agenda for applied research on how individuals manage moments of stigmatized identity. *Journal of Applied Communication Research*, 38(3), 268–292. <https://doi.org/10.1080/00909882.2010.490841>
- Miao, M., Zheng, L., Wen, J., Jin, S., & Gan, Y. (2021). Coping with coronavirus disease 2019: Relationships between coping strategies, benefit finding and well-being. 1–10. *Stress and Health*. <https://doi.org/10.1002/smi.3072>
- Michikyan, M. (2019). Depression symptoms and negative online disclosure among young adults in college: A mixed-methods approach. *Journal of Mental Health*, 29(4), 392–400. <https://doi.org/10.1080/09638237.2019.1581357>
- Moreno, M. A., Jelenchick, L. A., Egan, K. G., Cox, E., Young, H., Gannon, K. E., ... & Becker, T. (2011). Feeling bad on Facebook: Depression disclosures by college students on a social networking site. *Depression and Anxiety*, 28(6), 447–455. <https://doi.org/10.1002/da.20805>
- Moreno, M. A., Christakis, D. A., Egan, K. G., Jelenchick, L. A., Cox, E., Young, H., & Becker, T. (2012). A pilot evaluation of associations between displayed depression references on Facebook and self-reported depression using a clinical scale. *The Journal of Behavioral Health Services & Research*, 39(3), 295–304. <https://doi.org/10.1007/s11414-011-9258-7>
- Montagni, I., Parizot, I., Horgan, A., Gonzalez-Caballero, J. L., Almenara-Barrios, J., Lagares-Franco, C., ... & Amaddeo, F. (2016). Spanish students' use of the Internet for mental health information and support seeking. *Health Informatics Journal*, 22(2), 333–354. <https://doi.org/10.1177/1460458214556908>
- Naslund, J. A., Grande, S. W., Aschbrenner, K. A., & Elwyn, G. (2014). Naturally occurring peer support through social media: The experiences of individuals with severe mental illness using YouTube. *PLoS One*, 9(10), e110171. <https://doi.org/10.1371/journal.pone.0110171>
- Naslund, J. A., Aschbrenner, K. A., Marsch, L. A., & Bartels, S. J. (2016). The future of mental health care: Peer-to-peer support and social media. *Epidemiology and Psychiatric Sciences*, 25(2), 113–122. <https://doi.org/10.1017/S2045796015001067>
- Naslund, J. A., Aschbrenner, K. A., McHugo, G. J., Ünützer, J., Marsch, L. A., & Bartels, S. J. (2019). Exploring opportunities to support mental health care using social media: A survey of social media users with mental illness. *Early Intervention in Psychiatry*, 13(3), 405–413. <https://doi.org/10.1111/eip.12496>
- Naslund, J. A., Bondre, A., Torous, J., & Aschbrenner, K. A. (2020). Social media and mental health: Benefits, risks, and opportunities for research and practice. *Journal of Technology in Behavioral Science*, 5(3), 245–257. <https://doi.org/10.1007/s41347-020-00134-x>
- Nick, E. A., Cole, D. A., Cho, S., Smith, D. K., Carter, T. G., & Zerkowicz, R. L. (2018). The online social support scale: Measure development and validation. *Psychological Assessment*, 30(9), 1127–1143. <https://doi.org/10.1037/pas0000558>
- Pahayahay, A., & Khalili-Mahani, N. (2020). What media helps, what media hurts: A mixed methods survey study of coping with COVID-19 using the media repertoire framework and the appraisal theory of stress. *Journal of Medical Internet Research*, 22(8), e20186–e20186. <https://doi.org/10.2196/20186>
- Park, J. H., Gu, B., Leung, A. C. M., & Konana, P. (2014). An investigation of information sharing and seeking behaviors in online investment communities. *Computers in Human Behavior*, 31, 1–12. <https://doi.org/10.1016/j.chb.2013.10.002>
- Perrin, A., & Anderson, M. (2019, April 10). Share of U.S. adults using social media, including Facebook is mostly unchanged since 2018. *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/>
- Prescott, J., Hanley, T., & Ujhelyi, K. (2017). Peer communication in online mental health forums for young people: Directional and nondirectional support. *JMIR Mental Health*, 4(3), e29. <https://doi.org/10.2196/mental.6921>
- Repper, J., & Carter, T. (2011). A review of the literature on peer support in mental health services. *Journal of Mental Health*, 20(4), 392–411. <https://doi.org/10.3109/09638237.2011.583947>
- Rideout, V., & Fox, S. (2018). *Digital health practices, social media use, and mental wellbeing among teens and young adults in the US*. Hope Lab Report. <https://digitalcommons.psjhealth.org/publications/1093/>
- Seeger, M. W., Islam, K., & Seeger, H. S. (2021). Emergency preparedness, response, and strategic communication for natural disasters. In C. H. Baton (Ed.), *The Handbook of strategic communication* (pp. 208–221). Wiley Blackwell.
- Smith, A., & Anderson, M. (2018, March 1). Social media use in 2018. *Pew Research Center*. <http://www.pewinternet.org/2018/03/01/social-media-use-in-2018/>
- Vahratian, A., Blumberg, S. J., Terlizzi, E. P., & Schiller, J. S. (2021). Symptoms of anxiety or depressive disorder and use of mental health care among adults during the COVID-19 pandemic—United States, August 2020–February 2021. *Morbidity and Mortality Weekly Report*, 70(13), 490–494. <https://doi.org/10.15585/mmwr.mm7013e2externalicon>
- Walther, J. B., & Boyd, S. (2002). Attraction to computer-mediated social support. In C. A. Lin & D. Atkin (Eds.), *Communication technology and society: Audience adoption and uses* (pp. 153–188). Hampton Press.
- Wang, X., Shi, J., & Kong, H. (2020). Online health information seeking: A review and meta-analysis. *Health Communication*, 36(10), 1163–1175. <https://doi.org/10.1080/10410236.2020.1748829>
- Westerman, D., Spence, P. R., & Van Der Heide, B. (2014). Social media as information source: Recency of updates and credibility of information. *Journal of Computer-Mediated Communication*, 19(2), 171–183. <https://doi.org/10.1111/jcc4.12041>
- Wetterlin, F. M., Mar, M. Y., Neilson, E. K., Werker, G. R., & Krausz, M. (2014). eMental health experiences and expectations: A survey of youths' web-based resource preferences in Canada. *Journal of Medical Internet Research*, 16(12), e293. <https://doi.org/10.2196/jmir.3526>
- Wills, T., & Isasi, C. (2007). Buffering effect. In R. F. Baumeister & K. D. Vohs (Eds.), *Encyclopedia of social psychology* (Vol. 1, pp. 128–128). SAGE Publications, Inc. <https://doi.org/10.4135/9781412956253.n76>
- Wolfers, L. N., & Schneider, F. M. (2020). Using media for coping: A scoping review. *Communication Research*, 1–25. <https://doi.org/10.1177/0093650220939778>
- Wright, K. B., Rosenberg, J., Egbert, N., Ploeger, N. A., Bernard, D. R., & King, S. (2013). Communication competence, social support, and depression among college students: A model of Facebook and face-to-face support network influence. *Journal of Health Communication*, 18, 41–57. <https://doi.org/10.1080/10810730.2012.688250>
- Younes, N., Chollet, A., Menard, E., & Melchior, M. (2015). E-mental health care among young adults and help-seeking behaviors: A transversal study in a community sample. *Journal of Medical Internet Research*, 17(5), e123. <https://doi.org/10.2196/jmir.4254>
- Zhang, R. (2017). The stress-buffering effect of self-disclosure on Facebook: An examination of stressful life events, social support, and mental health among college students. *Computers in Human Behavior*, 75, 527–537. <https://doi.org/10.1016/j.chb.2017.05.043>