

Death Studies

ISSN: 0748-1187 (Print) 1091-7683 (Online) Journal homepage: www.tandfonline.com/journals/udst20

Mediating role of positivity in the relationship between state anxiety and problematic social media use during the COVID-19 pandemic

Ibrahim Arpaci, Kasim Karatas, Fettah Kiran, Ismail Kusci & Ahmet Topcu

To cite this article: Ibrahim Arpaci, Kasim Karatas, Fettah Kiran, Ismail Kusci & Ahmet Topcu (2022) Mediating role of positivity in the relationship between state anxiety and problematic social media use during the COVID-19 pandemic, Death Studies, 46:10, 2287-2297, DOI: 10.1080/07481187.2021.1923588

To link to this article: https://doi.org/10.1080/07481187.2021.1923588

Published online: 14 May 2021.

Submit your article to this journal

Article views: 1603

View related articles

View Crossmark data

Citing articles: 5 View citing articles

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=udst20

DEATH STUDIES
2022, VOL. 46, NO. 10, 2287–2297
https://doi.org/10.1080/07481187.2021.1923588

Routledge
Taylor & Francis Group

Check for updates

Mediating role of positivity in the relationship between state anxiety and problematic social media use during the COVID-19 pandemic

Ibrahim Arpaci[a], Kasim Karatas[b], Fettah Kiran[c], Ismail Kusci[d], and Ahmet Topcu[e]

[a]Department of Computer Education and Instructional Technology, Faculty of Education, Tokat Gaziosmanpasa University, Tokat, Turkey; [b]Department of Education Sciences, Faculty of Education, Karamanoglu Mehmetbey University, Karaman, Turkey; [c]Division of Computer Science & Engineering, School of Electrical Engineering and Computer Science, Louisiana State University, Baton Rouge, LA, USA; [d]Department of Guidance and Counseling, Faculty of Education, Bursa Uludag University, Bursa, Turkey; [e]College of Engineering and Technology, American University of the Middle East, Kuwait, Kuwait

ABSTRACT

This study investigated the mediating role of positivity in the relationship between state anxiety and problematic social media use during the COVID-19 pandemic. The Positivity Scale, State-Trait Anxiety Inventory, and Bergen Social Media Addiction Scale were used to collect data from 834 social media users. SEM-based mediation analysis was used to test hypothesized relationships. Results indicated that positivity has a direct negative effect on problematic social media use. Furthermore, the results indicated that state anxiety has a direct negative effect on positivity and state anxiety has a direct positive effect on problematic social media use. Positivity significantly mediates the relationship between state anxiety and problematic social media use.

Introduction

Governments have instituted many restrictions with the aim of preventing the spread of the COVID-19 pandemic, causing individuals to seek new ways of maintaining contact with others and particularly social communications in different areas of social life (Abel & McQueen, 2020; Anwar et al., 2020; Shaw et al., 2020). Social media plays a central role in individuals' social lives (Allen et al., 2014), including to get updated information about the pandemic, to maintain their communications, and sometimes to distract themselves from the fear and anxiety created by the pandemic (Arpaci et al., 2021; Baloglu et al., 2021). Although such avoidance behavior is generally regarded as an important coping mechanism, social media use may become problematic during long-lasting and restrictive processes like the COVID-19 pandemic precautions.

The failure to use social media effectively and appropriately is associated with several psychological problems in individuals. This situation has been conceptualized as problematic social media use in the literature. Problematic Internet usage may have serious consequences: job loss, relationship breakdowns, economic problems, and unfavorable psychosocial results (Alheneidi, 2019). Although a standard definition for problematic social media use has not yet been established in the literature (Chang et al., 2021; Wegmann et al., 2015), it can be generally understood as the excessive use of social media applications. The negative consequences triggered by this excessive use have harmful effects on users' personal, social, and professional lives (Hormes, 2016). In cases of problematic social media use, people spend more time on social media and have a sense of urgency in relation to their use of social media applications. They feel discomfort in the event of social media bans or restrictions (Pennycook et al., 2020). With excessive use of social media, the priorities in a person's life are relegated to the background, and this gives rise to such negative consequences as becoming indifferent to family, close relatives, and friends (Andreassen et al., 2012).

It was reported in previous studies that, in parallel with the increase in problematic social media use among individuals, levels of depression (Wegmann et al., 2015), anxiety (Chen et al., 2020; Primack et al., 2017), and negative body image (Wood et al., 2016) increased and levels of life satisfaction and self-esteem decreased (Hawi & Samaha, 2017). Anxiety is the body's natural alarm system, indicating oncoming

CONTACT Kasim Karatas kasimkaratas@outlook.com, kasimkaratas@kmu.edu.tr Department of Education Sciences, Faculty of Education, Karamanoglu Mehmetbey University, Floor:3/322, Karaman, Turkey.

© 2021 Taylor & Francis Group, LLC

danger and corrective measures that need to be taken (Spielberger, 2013). State anxiety is further defined as a form of anxiety based on a temporary situation, generally experienced by all individuals and emerging as a result of encountering a dangerous or undesirable situation or stressor depending on environmental conditions and shaped by logical factors that can be understood by others (Spielberger, 2013).

Until a quarter century ago, in psychology, primarily negative emotions (e.g. stress, anxiety, anger, fear) were investigated; however, particularly in the last twenty years, with the rise of positive psychology, positive emotions and their effects have been more frequently studied (Keyes & Haidt, 2003). In the literature, positivity, understood as talking and acting with a positive attitude, can be distinguished from hope, which is considered as the closest term to "being positive" (McGrath, 2004). Positive thinking is the essence of people's confidence for their future experiences (Scheier et al., 1993). Positivity has been defined as a general deciding factor of the self-reported measure of well-being, which may also be associated with peoples' fluctuations or stability in happiness in different settings (Kozma et al., 2000). Uncertainty, depression, anxiety, and stress can be taken into account among the various elements that impact positivity negatively (Satici et al., 2020). As one of the concepts of positive psychology, positivity is more than a simple humanistic emotion (Fredrickson, 2010). Researchers have explained that positivity is an optimistic, positive attitude or a concept reflecting an emotional state (Satici & Uysal, 2015; Stockdale & Coyne, 2020). It corresponds to the potential dimension affected by people's cognitions, emotions, and actions and it underlies life satisfaction, self-esteem, and optimism (Caprara et al., 2012).

Individuals with positive emotional states work more productively and fruitfully (Achor, 2010). Optimistic people expect positive consequences even in difficult conditions and this sense of confidence causes further positive emotions to emerge. Pessimistic people, on the other hand, expect negative consequences, and this lack of confidence causes the emergence of negative feelings such as anxiety, guilt, anger, sorrow, and despair (Scheier & Carver, 2003). The Internet is among the communication tools that can be used as a means of helping people to reduce their anxiety, as users are free of social norms and expectations that have a negative effect on anxiety (Yen et al., 2012). Social media use has become widespread as a source of communication with others and of daily news from around the world. During the COVID-19 pandemic, social media use has increased considerably. However, the tendency to seek out information about new COVID-19 cases every day is causing panic and anxiety (Banerjee, 2020). A possible significant relationship between the anxiety that people experience or the positivity that they have and problematic social media use during the COVID-19 pandemic needs to be considered. Therefore, the present study was conducted to investigate the relationship between the variables of anxiety, positivity, and problematic social media use via structural equation modeling (SEM).

Theoretical background and hypotheses

Positivity is a state of mind that entails thinking in optimistic ways, expecting a happy life, and finding solutions during difficult times. Fredrickson's broaden-and-build theory of positive emotions (Fredrickson, 2000) forms the theoretical basis of this study. According to this theory, positive emotions can improve and expand a person's cognitive and behavioral capacity. People who utilize positive emotions have the opportunity to grow and adapt to changes in emotionally challenging conditions or events (Avey et al., 2011). Therefore, it may be easier for such people to adapt to the challenging conditions and changes during the COVID-19 pandemic. Positive emotions are a source of skills that enable people to feel resilient and to think and act accordingly (Harding et al., 2019). In addition, it is emphasized that positive emotions improve both physical health and mental health and increase psychological well-being and happiness (Fredrickson, 2000). On the other hand, as people experience negative emotions, they become more sensitive to various mental health problems, including anxiety (Cohn et al., 2009). Some diseases or unexpected situations such as the COVID-19 pandemic have a harmful impact on positivity (Fredrickson, 2010). In such cases, reshaping life becomes more of a challenge and dealing with changes becomes more difficult. In contrast, when positivity is beneficially affected, it becomes easier to modify one's life according to changing circumstances (Satici et al., 2020). Positive thinking represents the confidence that people feel about their future experiences (Scheier & Carver, 2003) and reflects a tendency to view life with a mostly optimistic perspective (Satici & Uysal, 2015).

Adults largely use social media to alleviate boredom (Stockdale & Coyne, 2020), but social media can be further used to decrease stress and anxiety during the COVID-19 pandemic (Banerjee, 2020). However,

problematic social media use decreases individuals' positivity levels. In previous studies, a negative relationship was found between problematic social media use and positivity (Worsley et al., 2018). Similarly, well-being was negatively related to problematic social media use (Satici & Uysal, 2015). Problematic social media use has serious negative effects on people's satisfaction with their lives. Based on these definitions, positivity can be seen as an integration of emotions and behaviors that enables the individual to maintain a positive perspective in the face of all kinds of problematic situations and negativity. Therefore, in the present study, we hypothesized that there would be a negative relationship between positivity and problematic social media use (H1).

Well-being is seen to be based on both cognitive assessment and emotional assessment (Diener et al., 1985). Although cognitive assessment is reflected in life satisfaction, emotional assessment is related to positive emotions (Pavot & Diener, 2008). Since positivity is seen as an emotional state that reflects an optimistic or positive situation (Cohn et al., 2009; McGrath, 2004), studies related to well-being may also be linked with positivity. Therefore, when the literature is examined, it is evident that as positivity increases, problematic social media use decreases, because positivity is one of the indicators of the well-being of the individual (Worsley et al., 2018). In addition, in a longitudinal study, problematic social media use was found to be negatively related to positive mood in general (Shakya & Christakis, 2017).

A person with high subjective well-being is a person who is rarely anxious and generally happy and joyful in his or her life (Diener et al., 2002). Positive and negative affect components together constitute the emotional dimension of subjective well-being (Pavot & Diener, 2008). In a systematic review of 70 studies, a higher correlation between negative interactions on social media sites and anxiety was defined (Seabrook et al., 2016). A recent study (Stockdale & Coyne, 2020) also showed that the use of social media for boredom is positively related to the search for information. Internet addiction has been suggested as a means of passive coping, with addictive users communicating on the Internet to avoid real-life problems and unsettling feelings (Wang et al., 2018).

Positive emotion is expressed by being willing, energetic, and determined, and negative emotions include sorrow, anxiety, anger, and guilt. The factors decreasing positivity include uncertainty, depression, anxiety, and stress (Satici et al., 2020). For this reason, studies indicate that as individuals' positivity levels decrease, their anxiety levels increase (Bakioğlu et al., 2020). Therefore, it was also hypothesized that there would be a negative relationship between positivity and state anxiety (H2).

As stated above, people with high subjective well-being are rarely anxious; they are usually happy and cheerful (Diener et al., 2002). Furthermore, positive affect and negative affect components are both a part of the emotional dimension of subjective well-being (Pavot & Diener, 2008). However, uncertainty, depression, anxiety, and stress all negatively affect positivity (Satici et al., 2020). Therefore, as individuals' positivity levels decrease, their anxiety levels are found to increase. The increase in uncertainty during the COVID-19 pandemic has accordingly had an effect on people's positivity levels. (Bakioğlu et al., 2020) People with high levels of positivity do not give up striving to be successful even under difficult conditions (Scheier & Carver, 2003). However, people with decreasing positivity levels, especially in situations such as the COVID-19 pandemic, may start to think negatively and experience increased anxiety, focusing on thoughts about their life plans not going as expected or yielding poor outcomes. People with high levels of positivity, on the other hand, may think that they can cope with the difficult conditions during the COVID-19 pandemic period and may not worry as much.

As people have more positive feelings, they also generally have more flexibility. This helps people avoid increased levels of anxiety. Recent studies investigating the reasons for social media use have suggested that it is a means of alleviating anxiety and ambiguity (Satici et al., 2020; Stockdale & Coyne, 2020; Yen et al., 2012). Similarly, positivity or the lack thereof is related to problematic social media use among adolescents. Individuals use social media applications as important outlets to minimize stress and anxiety resulting from the COVID-19 pandemic (Banerjee, 2020). Previous experimental studies indicated that anxiety was related to problematic social media use (Casale & Fioravanti, 2015; Xie & Karan, 2019). In another study (Vannucci et al., 2017), it was reported that individuals' anxiety levels increased with their increasing levels of problematic social media use. A similar study highlighted that young people with problematic social media use were more anxious (Barry et al., 2017). Moreover, young adults' depression and anxiety levels increased in line with the increase in the number of their social media accounts (Primack et al., 2017). Therefore, it was also hypothesized that there would be a positive relationship between state anxiety and problematic social media use (H3).

Anxiety associated with problematic social media use (Seabrook et al., 2016; Vannucci et al., 2017; Wegmann et al., 2015). It is known that the COVID-19 pandemic has had negative psychological effects on individuals (Kukreti et al. 2021; Lin & Cheng, 2020; Lin et al., 2021; Mamun et al., 2021; Nathiya et al., 2020; Pramukti et al., 2020). The disruption of people's routines, fear of catching COVID-19, and uncertainty about when the pandemic will end have all increased people's anxiety (Akat & Karataş, 2020), and this increasing anxiety level triggers the emergence of many problematic behaviors, generally decreasing positive emotions. One such problematic behavior is problematic social media use.

It was previously reported that social networking site addiction was positively associated with depression (Wang et al., 2018). People who begin at higher levels of connection using social media are found to have higher levels of anxiety in their lives (Stockdale & Coyne, 2020). Problematic Internet use was related to both state anxiety and well-being (Lai et al., 2015). Similarly, previous studies indicated that problematic Internet use caused anxiety and depression and affected well-being negatively (Alheneidi, 2019; Banerjee, 2020; Kuss et al., 2014), emphasizing that excessive or intensive use of social media should be avoided because it may decrease individuals' positivity. Studies have shown that problematic social media use is linked to negative outcomes of well-being, family relations, and mental disorders (Lai et al., 2015) and that low levels of positivity are among the central cognitive symptoms of anxiety associated with problematic social media use (Davis, 2001). It was further concluded that distortions such as "the Internet is my only friend" or "the Internet is the only place where I'm respected" are stimulated unintentionally whenever online communication is available for those with Internet addiction. On the other hand, life-threatening danger is an understandable reason for anxiety symptoms, related to the appearance of the autonomic response (Davis, 2001). Although many studies regarding problematic social media use have been conducted, the link between positivity, anxiety, and problematic social media use appears to have not yet been investigated. In the present study, it was hypothesized that positivity would mediate the relationship between state anxiety and problematic social media use (H4).

Method

Participants and procedure

A convenience sample comprising 834 undergraduate students was recruited from a public university in Turkey. Google Forms online surveying tool was used to collect data. The survey link was distributed to the target population through institutional social media channels. Of the respondents, 73% were women ($n = 609$) and 27% were men ($n = 225$) with an average age of 22.16 years (SD = 3.98; ranging from 16 to 52). By class standing, 15.0% were freshmen, 33.6% were sophomores, 35.1% were juniors, and 16.3% were seniors. Furthermore, 99.6% of the participants had a smartphone, and 88.8% of them used social media for more than three hours per day.

Measures

Positivity

The Positivity Scale was developed by Caprara et al. (2012) and adapted into Turkish by Çıkrıkçı, Çiftçi, and Gençdogan (Çıkrıkçı et al., 2015). The scale has eight items, including a reverse-scored item. Sample items include "I have great faith in the future," "I look forward to the future with hope and enthusiasm," and "At times, the future seems unclear to me." These items are scored on a five-point Likert-type scale from "strongly disagree" to "strongly agree." A higher score shows a higher level of positivity. The reliability of the scale is satisfactory ($\alpha = 0.75$; Çıkrıkçı et al., 2015), and in the present sample was $\alpha = 0.81$. Furthermore, CFA results indicated good fit ($\chi^2/df = 2.92$, GFI = 0.97, RMSEA = 0.06, NFI = 0.92, IFI = 0.95, CFI = 0.95).

Anxiety

The State-Trait Anxiety Inventory (STAI-TX) is a 40-item two-factor scale was developed to measure trait and state anxiety. Öner and Le Compte (1985) adapted the scale into Turkish. The state anxiety scale has 20 items, including 10 reverse-scored items. Sample items include "I am tense; I am worried" and "I feel calm; I feel secure." Items are scored on a four-point Likert-type scale from "almost never" to "almost always." Higher scores indicate greater anxiety and a mean score greater than 40 is considered to represent a clinically significant anxiety level. Cronbach's α value for the Turkish STAI-TX was 0.83 (Öner and Le Compte, 1985) and 0.92 in our sample.

Social media use

The Bergen Social Media Addiction Scale (BSMAS) is a six-item scale was developed by Andreassen et al. (2012) and adapted into Turkish by Demirci (2019). Sample items include "How often during the COVID-19 pandemic have you used social media to forget

about personal problems; felt an urge to use social media more and more; or become restless or troubled if you have been prohibited from using social media?" Items are scored on a five-point Likert-type scale ranging from "very rarely" to "very often." Higher scores indicate higher levels of problematic social media use. Cronbach's α value for the Turkish BSMAS was 0.88 (Demirci, 2019) and in the present sample was $\alpha = 0.84$.

Results

Preliminary analysis

Structural equation modeling (SEM) was used to estimate the models and explore the relationships between positivity, state anxiety, and problematic social media use. In the preliminary analysis, factorability, normality, and reliability analyses were conducted, followed by Pearson correlation analysis. Confirmatory factor analysis (CFA) was employed to assess the validity of the measurement and structural models. Mediation analysis with bootstrapping was used to explore the hypothesized relationships. The bootstrapping procedure was applied to test direct, indirect, and total effects with 5000 bootstrapping samples and 95% confidence intervals.

SPSS 25.0 and AMOS were used to conduct statistical tests. The Kaiser-Meyer-Olkin indices, which ranged from 0.84 to 0.94, indicated the sampling adequacy of each scale. The significance of Bartlett's test ($p < 0.001$) indicated that the data were appropriate for factorability. The total explained variance ranged from 54.95 to 60.70%. Minimal skewness (ranging between −0.440 and 0.363) and kurtosis (ranging between −0.517 and 0.362) confirmed the normal distribution of the data. Cronbach's α coefficients, which ranged from 0.81 to 0.92, confirmed the reliability of the scales. Table 1 shows the Pearson correlations, normality, and reliability results.

Confirmatory factor analysis

SPSS AMOS (Ver. 23) was used to conduct CFA to assess the validity of the measurement models and the structural model. The results presented in Table 2 suggest adequate evidence for the construct validity of the measurement models and structural model.

Hypothesis testing

SEM-based mediation analysis in AMOS was used to test the hypothesized relationships. A bootstrapping procedure with 5000 bootstrapping samples and 95% confidence intervals was applied to test direct, indirect, and total effects. Results showed that positivity has a direct negative effect on problematic social media use ($\beta = -0.185$, $t = -3.225$, $p = 0.001$) and, therefore, H1 was supported. Furthermore, the results indicated that state anxiety has a direct negative effect on positivity ($\beta = -0.653$, $t = -14.732$, $p < 0.001$). Therefore, H2 was supported. The results indicated that state anxiety has a direct positive effect on problematic social media use ($\beta = 0.216$, $t = 3.935$,

Table 1. Correlations, skewness, kurtosis, and reliability coefficients.

Scale	1	2	3	Total variance explained	Skewness (SE = 0.085)	Kurtosis (SE = 0.169)	α
1. Positivity	1			58.65	−0.440	0.362	0.812
2. Anxiety	−0.576*	1		60.70	0.363	−0.193	0.917
3. Problematic social media use	−0.265*	0.308*	1	54.95	−0.219	−0.517	0.835

*$p < .001$.

Table 2. Model fit indices.

	Measurement models				
Fit indices	Problematic social media use	Positivity	Anxiety	Structural Model	Reference value(s)
χ^2	2.420	17.332	180.552	1289.162	
p Value	.298	.027	<.001	<.001	
χ^2/df	1.210	2.166	3.060	3.357	<3
GFI*	0.999	0.995	0.979	0.908	≥0.90
AGFI	0.993	0.977	0.925	0.873	≥0.80
NFI	0.997	0.992	0.981	0.900	≥0.90
TLI	0.998	0.984	0.958	0.905	≥0.90
CFI	0.999	0.995	0.987	0.927	≥0.90
IFI	0.999	0.996	0.987	0.927	≥0.90
RMSEA	0.016	0.037	0.050	0.053	≤0.08
SRMR	0.010	0.017	0.048	0.065	≤0.08

*GFI: Goodness-of-Fit Index; AGFI: Adjusted Goodness-of-Fit Index; NFI: Normed Fit Index; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index; IFI: Incremental Fit Index; RMSEA: root mean square error of approximation; SRMR: standardized root mean squared residual.

Table 3. Hypotheses testing results.

Direct, indirect, and total effects	β	SE*	LLCI	ULCI	p
Standardized direct effects					
H1. Positivity → problematic social media use	−0.185	0.063	−0.311	−0.061	.004
H2. Anxiety → Positivity	−0.653	0.029	−0.706	−0.593	.001
H3. Anxiety → problematic social media use	0.216	0.064	0.089	0.337	.001
Standardized indirect effect					
H4. Anxiety → Positivity → problematic social media use	0.120	0.042	0.040	0.204	.004
Standardized total effects					
Anxiety → Positivity	−0.653	0.029	−0.706	−0.593	.001
Positivity → problematic social media use	−0.185	0.041	−0.311	−0.061	.004
Anxiety → problematic social media use	0.337	0.063	0.253	0.415	.001

*SE: standard error; LLCI: lower limit confidence interval; ULCI: upper limit confidence interval, problematic social media use: problematic social media use.

$p < 0.001$). Hence, H3 was supported. The results showed that positivity significantly mediates the relationship between state anxiety and problematic social media use ($\beta = 0.120$, LLCI = 0.040, ULCI = 0.204, $p = 0.004$). The lower limit of the confidence interval (LLCI) and upper limit of the confidence interval (ULCI) did not include zero; thus, H4 was also supported. Table 3 shows the testing results for the hypotheses.

According to the R^2 values shown in Figure 1, positivity and state anxiety together explained 13% of the variance (SE = 0.68) in problematic social media use. Moreover, positivity explained 43% of the variance (SE = 0.21) in state anxiety. The obtained R^2 values were found to be acceptable.

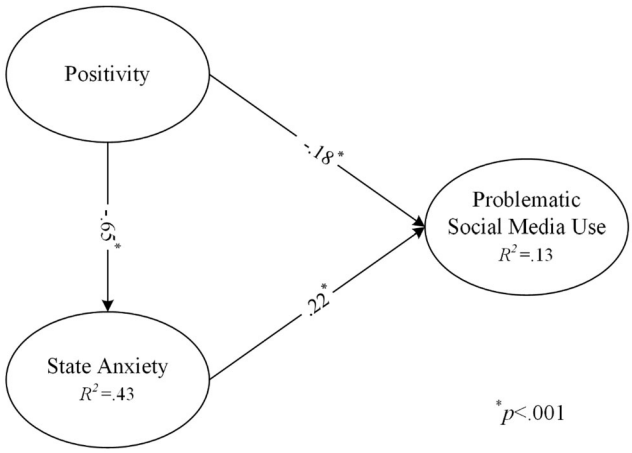


Figure 1. The structural model.

Discussion

The COVID-19 pandemic has negatively affected people's mental health. Indeed, extensive destructive events in the past such as natural disasters and wars have been known to affect people's psychological health similarly negatively. In such situations, people may experience behavioral and psychological disorders. During the COVID-19 pandemic, studies have demonstrated that people are experiencing psychological disorders such as anxiety, post-traumatic stress disorder, depression, anger, low self-esteem (Bo et al., 2020; Huang & Zhao, 2020), extreme fear of illness, acute stress disorder, schizophrenia, increased alcohol and tobacco use, and even suicidal tendencies (Hu et al., 2020; Huang & Zhao, 2020). Changes in living conditions and social circumstances directly affect the well-being of individuals (Pulido et al., 2020). It is inevitable that global pandemics such as COVID-19 will affect people's positivity levels. People may use several strategies to maintain or increase their positivity, and one of these strategies is the use of social media. Even when people are physically separated from each other, they can maintain constant communication through social media. At this point in history, social media is a tool that increases the well-being of people as a means of communication. Among adults, social media is also widely used to alleviate boredom (Stockdale & Coyne, 2020). Social media usage has been an important way to reduce stress and anxiety during the COVID-19 pandemic, but it should be emphasized that excessive or intensive use of social media may decrease the level of positivity of individuals. Indeed, in the present study, a negative relationship was found between problematic social media use and positivity levels. Some other studies also found a negative relationship between problematic social media use and positivity (Satici & Uysal, 2015; Worsley et al., 2018).

In the COVID-19 pandemic, people are advised to avoid problematic social media use to overcome their problems more successfully and maintain their optimism about the future. Otherwise, the development of emotions such as anxiety, stress, and depression may be triggered. In various studies, it was concluded that anxiety levels increase as positivity levels decrease (Bakioğlu et al., 2020). Similarly, in this study, a negative relationship was found between the positivity levels and anxiety levels of individuals during the COVID-19 pandemic. In addition, a positive

relationship was found between anxiety levels and problematic social media use.

During the COVID-19 pandemic, individuals exposing themselves to heavy social media usage may experience some psychological disorders. Indeed, previous studies conducted during the COVID-19 pandemic reported that social media exposure increased individuals' levels of anxiety (Zhao & Zhou, 2020). Hashemi et al. (2020) found that the fear of COVID-19 were significantly related with problematic Internet use, physical concern, cognitive concern, and social concern anxiety sensitivity. Likewise, it was stated that more people were diagnosed with depression and experienced more unrest during the COVID-19 pandemic, and it was claimed that problematic social media use may trigger this situation (Mowbray, 2020). During the pandemic, problematic Internet use was increased among school children and Internet-related activities were associated with greater psychological distress (Chen et al., 2020; Chen, Chen, O'Brien, et al., 2021; Chen, Chen, Pakpour, et al., 2021). Chen, Chen, Hou, et al. (2021) examined how COVID-19 pandemic affected problematic smartphone use, problematic gaming, and psychological distress. Their findings indicated the COVID-19 influences the relationships between the three constructs in school children. On the other hand, in the mediation analysis, it was determined that the level of positivity had a mediating role between anxiety and problematic social media use. In other words, state anxiety can predict problematic social media use through positivity. Internet addiction has a significant relationship with both anxiety and well-being (Lai et al., 2015). Similarly, previous research showed that problematic Internet use was significantly related to anxiety and depression (Alheneidi, 2019). Increasing time spent on social media and problematic social media use may cause depression, anxiety, and psychological distress (Kuss & Griffiths, 2017). Lin et al. (2020) found that the fear of COVID-19 and problematic social media use were significantly associated with psychological distress. It has been shown that people who spend a significant amount of time on the Internet will acquire problematic and addictive behaviors (Guazzini et al., 2019). In this sense, high anxiety and low positivity of individuals in the course of the COVID-19 pandemic may increase their behaviors of problematic social media use.

There is still uncertainty about the duration of the COVID-19 pandemic and the time it will take to return to normal routines of living. This uncertainty has an intense negative impact, especially on young adults (Huang & Zhao, 2020). Therefore, they experience more intense anxiety and stress. In the scope of COVID-19, young adults are more sensitive to lockdown conditions and psychological distress. They can develop creative solutions and new skills to deal with the pandemic, but they are nevertheless the most psychologically troubled (Glowacz & Schmits, 2020). Therefore, government officials must provide free psychological support to young adults, both face-to-face and online. Psychological counseling centers can make career plans and support the building of motivational skills to increase the positivity levels of students.

Immediate psychological first-aid service should be provided to young adults who experience intense anxiety and problematic behaviors. Governments and schools should collaborate to provide high-quality, timely crisis-oriented psychological services to students (Cao et al., 2020). If necessary, psychoeducation should be provided by experts for university students. Priority should particularly be given to fostering behaviors such as dealing with stress, maintaining positivity, and preventing problematic social media use. This will contribute to the protection of the mental health of young adults in both the short and long term. On the other hand, one of the factors causing stress among university students is distance education because of COVID-19. Not only the education systems of countries but also the students themselves were caught psychologically unprepared for distance education (Karatas & Arpaci, 2021). This is an educational method that some students have not experienced before, and some students also lack Internet and other technological resources. In turn, this problematic and inefficient education process increases their concerns about professional opportunities and the future in general. This anxiety can cause them to develop cognitively and emotionally problematic behaviors. In this context, the necessary measures for the support and improvement of educational processes should be undertaken by university administrations.

This study has revealed that problematic social media use is associated with the variables of anxiety and positivity in the COVID-19 pandemic process. However, there are some limitations that should be considered in interpreting this finding. First, the data were obtained from a relatively large sample. However, the individuals in the sample were generally young adults in terms of age. The findings are therefore generalizable for young adults and the difficulty in generalizing for other age groups may represent a limitation. In this context, researchers could carry out similar studies with individuals in other

developmental stages. Second, this research was conducted only by collecting data from the Turkish population. In this context, researchers can conduct similar studies with individuals from different countries, cultures, and ethnic backgrounds. Third, by their nature, cross-sectional studies may not provide information about cause-and-effect relationships. Thus, experimental and longitudinal studies are needed to establish such relationships. Conducting research using mixed-method patterns may provide clearer findings related to problematic social media use. In addition, the psychological variables that cause problematic social media use could be revealed.

ORCID

Ibrahim Arpaci http://orcid.org/0000-0001-6513-4569
Kasim Karatas http://orcid.org/0000-0002-2867-9583
Fettah Kiran http://orcid.org/0000-0002-8215-5828
Ahmet Topcu http://orcid.org/0000-0003-1929-5358

References

Abel, T., & McQueen, D. (2020). The COVID-19 pandemic calls for spatial distancing and social closeness: Not for social distancing! *International Journal of Public Health*, *65*(3), 231–231. https://doi.org/10.1007/s00038-020-01366-7.

Achor, S. (2010). *The happiness advantage*. Crown Publishers/Random House.

Akat, M., & Karataş, K. (2020). Psychological effects of COVID-19 Pandemic on society and its reflections on education. *Turkish Studies*, *15*(4), 1–13. https://doi.org/10.7827/TurkishStudies.44336.

Alheneidi, H. (2019). *The influence of information overload and problematic Internet use on adults wellbeing* [Doctoral dissertation]. Cardiff University.

Allen, K. A., Ryan, T., Gray, D. L., McInerney, D. M., & Waters, L. (2014). Social media use and social connectedness in adolescents: The positives and the potential pitfalls. *The Australian Educational and Developmental Psychologist*, *31*(1), 18–31. https://doi.org/10.1017/edp.2014.2.

Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook Addiction Scale. *Psychological Reports*, *110*(2), 501–517. https://doi.org/10.2466/02.09.18.PR0.110.2.501-517.

Anwar, A., Malik, M., Raees, V., & Anwar, A. (2020). Role of mass media and public health communications in the COVID-19 Pandemic. *Cureus*, *12*(9), e10453. https://doi.org/10.7759/cureus.10453

Arpaci, I., Alshehabi, S., Al-Emran, M., Khasawneh, M., Mahariq, I., Abdeljawad, T., & Ella Hassanien, A. (2020). Analysis of Twitter data using evolutionary clustering during the COVID-19 Pandemic. *Computers, Materials & Continua*, *65*(1), 193–204. https://doi.org/10.32604/cmc.2020.011489.

Arpaci, I., Karatas, K., Baloglu, M., & Haktanir, A. (2021). COVID-19 Phobia in the United States: Validation of the COVID-19 Phobia Scale (C19P-SE). *Death Studies*, 1–7. https://doi.org/10.1080/07481187.2020.1848945

Avey, J. B., Wernsing, T. S., & Mhatre, K. H. (2011). A longitudinal analysis of positive psychological constructs and emotions on stress, anxiety, and well-being. *Journal of Leadership & Organizational Studies*, *18*(2), 216–228. https://doi.org/10.1177/1548051810397368.

Bakioğlu, F., Korkmaz, O., & Ercan, H. (2020). Fear of COVID-19 and positivity: Mediating role of intolerance of uncertainty, depression, anxiety, and stress. *International Journal of Mental Health and Addiction*, https://doi.org/10.1007/s11469-020-00331-y

Baloglu, M., Karatas, K., & Arpaci, I. (2021). Psychological and socio-economic effects of the COVID-19 Pandemic on Turkish Population. In I. Arpaci, M.A. Al-Emran, M. Al-Sharafi & G. Marques (Eds.), *Emerging technologies during the era of COVID-19 Pandemic*. Springer.

Banerjee, D. (2020). The COVID-19 outbreak: Crucial role the psychiatrists can play. *Asian Journal of Psychiatry*, *50*, 102014. https://doi.org/10.1016/j.ajp.2020.102014.

Barry, C. T., Sidoti, C. L., Briggs, S. M., Reiter, S. R., & Lindsey, R. A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence*, *61*, 1–11. https://doi.org/10.1016/j.adolescence.2017.08.005.

Bo, H.-X., Li, W., Yang, Y., Wang, Y., Zhang, Q., Cheung, T., Wu, X., & Xiang, Y.-T. (2020). Posttraumatic stress symptoms and attitude toward crisis mental health services among clinically stable patients with COVID-19 in China. *Psychological Medicine*, 1–2. https://doi.org/10.1017/S0033291720000999

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, *287*(March), 112934. https://doi.org/10.1016/j.psychres.2020.112934.

Caprara, G. V., Alessandri, G., Eisenberg, N., Kupfer, A., Steca, P., Caprara, M. G., Yamaguchi, S., Fukuzawa, A., & Abela, J. (2012). The positivity scale. *Psychological Assessment*, *24*(3), 701–712. https://doi.org/10.1037/a0026681

Casale, S., & Fioravanti, G. (2015). Satisfying needs through social networking sites: A pathway towards problematic Internet use for socially anxious people? *Addictive Behaviors Reports*, *1*, 34–39. https://doi.org/10.1016/j.abrep.2015.03.008

Chang, Y.-H., Chang, K.-C., Hou, W.-L., Lin, C.-Y., & Griffiths, M. D. (2021). Internet gaming as a coping method among schizophrenic patients facing psychological distress. *Journal of Behavioral Addictions*, *9*(4), 1022–1031. https://doi.org/10.1556/2006.2020.00081

Chen, C.-Y., Chen, I.-H., Hou, W.-L., Potenza, M. N., O'Brien, K. S., Lin, C.-Y., & Latner, J. D. (2021). The relationship between children's problematic Internet-related behaviors and psychological distress during the onset of the COVID-19 pandemic: A longitudinal study. *Journal of Addiction Medicine* (Publish Ahead of Print). https://doi.org/10.1097/ADM.0000000000000845.

Chen, C.-Y., Chen, I.-H., O'Brien, K. S., Latner, J. D., & Lin, C.-Y. (2021). Psychological distress and internet-

related behaviors between schoolchildren with and without overweight during the COVID-19 outbreak. *International Journal of Obesity*, *45*(3), 677–686. https://doi.org/10.1038/s41366-021-00741-5.

Chen, I.-H., Chen, C.-Y., Pakpour, A. H., Griffiths, M. D., & Lin, C.-Y. (2020). Internet-related behaviors and psychological distress among schoolchildren during COVID-19 school suspension. *Journal of the American Academy of Child and Adolescent Psychiatry*, *159*(10), 1099–1102. https://doi.org/10.1016/j.jaac.2020.06.007.

Chen, I.-H., Chen, C.-Y., Pakpour, A. H., Griffiths, M. D., Lin, C.-Y., Li, X.-D., & Tsang, H. W. H. (2021a). Problematic internet-related behaviors mediate the associations between levels of internet engagement and distress among schoolchildren during COVID-19 lockdown: A longitudinal structural equation modeling study. *Journal of Behavioral Addictions*, *10*(1), 135–148. https://doi.org/10.1556/2006.2021.00006.

Chen, I.-H., Pakpour, A. H., Leung, H., Potenza, M. N., Su, J.-A., Lin, C.-Y., & Griffiths, M. D. (2020). Comparing generalized and specific problematic smartphone/internet use: Longitudinal relationships between smartphone application-based addiction and social media addiction and psychological distress. *Journal of Behavioral Addictions*, *9*(2), 410–419. https://doi.org/10.1556/2006.2020.00023.

Çıkrıkçı, Ö., Çiftçi, M., & Gençdoğan, B. (2015). The psychometric properties of the Turkish form of the positivity scale. *The Journal of Happiness & Well-Being*, *3*(1), 57–76.

Cohn, M. A., Fredrickson, B. L., Brown, S. L., Mikels, J. A., & Conway, A. M. (2009). Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion*, *9*(3), 361–368. https://doi.org/10.1037/a0015952.

Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, *17*(2), 187–195. https://doi.org/10.1016/S0747-5632(00)00041-8.

Demirci, İ. (2019). The adaptation of the Bergen Social Media Addiction Scale to Turkish and the evaluation its relationships with depression and anxiety symptoms. *Anatolian Journal of Psychiatry*, *1*(0), 1. https://doi.org/10.5455/apd.41585.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13.

Diener, E., Lucas, R. E., Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 63–73). Oxford University Press.

Fredrickson, B. (2010). *Positivity: Groundbreaking research reveals how to embrace the hidden strength of positive emotions, overcome negativity, and thrive*. Simon and Schuster.

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment*, *3*(1), 1–25. https://doi.org/10.1037/1522-3736.3.1.31a.

Glowacz, F., & Schmits, E. (2020). Psychological distress during the COVID-19 lockdown: The young adults most at risk. *Psychiatry Research*, *293*(May), 113486. https://doi.org/10.1016/j.psychres.2020.113486.

Guazzini, A., Duradoni, M., Capelli, A., & Meringolo, P. (2019). An explorative model to assess individuals' phubbing risk. *Future Internet*, *11*(1), 21. https://doi.org/10.3390/fi11010021.

Harding, K. A., Murphy, K. M., & Mezulis, A. (2019). Ruminating on the positive: Paths from trait positive emotionality to event-specific gratitude. *Journal of Happiness Studies*, *20*(1), 101–117. https://doi.org/10.1007/s10902-017-9940-4.

Hashemi, S. G. S., Hosseinnezhad, S., Dini, S., Griffiths, M. D., Lin, C.-Y., & Pakpour, A. H. (2020). The mediating effect of the cyberchondria and anxiety sensitivity in the association between problematic internet use, metacognition belief and fear of COVID-19 among Iranian online population. *Heliyon*, *6*(10), e05135. https://doi.org/10.1016/j.heliyon.2020.e05135.

Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, *35*(5), 576–586. https://doi.org/10.1177/0894439316660340.

Hormes, J. M. (2016). Under the influence of Facebook? Excess use of social networking sites and drinking motives, consequences, and attitudes in college students. *Journal of Behavioral Addictions*, *5*(1), 122–129. https://doi.org/10.1556/2006.5.2016.007.

Hu, W., Su, L., Qiao, J., Zhu, J., & Zhou, Y. (2020). Countrywide quarantine only mildly increased anxiety level during COVID-19 outbreak in China. *MedRxiv* https://doi.org/10.1101/2020.04.01.20041186

Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: a web-based cross-sectional survey. *MedRxiv*, https://doi.org/10.1101/2020.02.19.20025395

Karatas, K., & Arpaci, I. (2021). The role of self-directed learning, metacognition, and 21st century skills predicting the readiness for online learning. *Contemporary Educational Technology*, *13*(3), ep300. https://doi.org/10.30935/cedtech/10786.

Keyes, C. L. M., & Haidt, J. (Eds.). (2003). *Flourishing: Positive psychology and the life well-lived*. American Psychological Association.

Kozma, A., Stone, S., & Stones, M. J. (2000). Stability in components and predictors of subjective well-being (SWB): implications for SWB structure. (Issue January, 13–30). https://doi.org/10.1007/978-94-011-4291-5_2.

Kukreti, S., Lu, M.-L., Lin, Y.-H., Strong, C., Lin, C.-Y., Ko, N.-Y., Chen, P.-L., & Ko, W.-C. (2021). Willingness of Taiwan's healthcare workers and outpatients to vaccinate against COVID-19 during a period without community outbreaks. *Vaccines*, *9*(3), 246. https://doi.org/10.3390/vaccines9030246.

Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, *14*(3), 311. https://doi.org/10.3390/ijerph14030311.

Kuss, D., Griffiths, M., Karila, L., & Billieux, J. (2014). Internet addiction: A systematic review of epidemiological research for the last decade. *Current Pharmaceutical Design*, *20*(25), 4026–4052. https://doi.org/10.2174/13816128113199990617.

Lai, C. M., Mak, K. K., Watanabe, H., Jeong, J., Kim, D., Bahar, N., Ramos, M., Chen, S. H., & Cheng, C. (2015).

The mediating role of Internet addiction in depression, social anxiety, and psychosocial well-being among adolescents in six Asian countries: A structural equation modelling approach. *Public Health*, *129*(9), 1224–1236. https://doi.org/10.1016/j.puhe.2015.07.031.

Lin, C.-Y., Broström, A., Griffiths, M. D., & Pakpour, A. H. (2020). Investigating mediated effects of fear of COVID-19 and COVID-19 misunderstanding in the association between problematic social media use and distress/insomnia. *Internet Interventions*, *21*, 100345. https://doi.org/10.1016/j.invent.2020.100345

Lin, M. W., & Cheng, Y. (2020). Policy actions to alleviate psychosocial impacts of COVID-19 pandemic: Experiences from Taiwan. *Social Health and Behavior*, *3*(2), 72. https://doi.org/10.4103/SHB.SHB_18_20

Lin, C.-Y., Hou, W.-L., Mamun, M. A., da Silva, J. A., Broche-Pérez, Y., Ullah, I., Masuyama, A., Wakashima, K., Mailliez, M., Carre, A., Chen, Y.-P., Chang, K.-C., Kuo, Y.-J., Soraci, P., Scarf, D., Broström, A., Griffiths, M. D., & Pakpour, A. H. (2021). Fear of COVID-19 Scale (FCV-19S) across countries: Measurement invariance issues. *Nursing Open*, https://doi.org/10.1002/nop2.855

Mamun, M. A., Sakib, N., Gozal, D., Bhuiyan, A. I., Hossain, S., Bodrud-Doza, M., Mamun, F. A., Hosen, I., Abdullah, A. H., Sarker, M. A., Rayhan, I., Sikder, M. T., Muhit, M., Lin, C.-Y., Griffiths, M. D., & Pakpour, A. H. (2021). The COVID-19 pandemic and serious psychological consequences in Bangladesh: A population-based nationwide study. *Journal of Affective Disorders*, *279*, 462–472. https://doi.org/10.1016/j.jad.2020.10.036.

McGrath, P. (2004). The burden of the 'RA RA' positive: survivors' and hospice patients? reflections on maintaining a positive attitude to serious illness. *Supportive Care in Cancer*, *12*(1), 25–33. https://doi.org/10.1007/s00520-003-0547-4.

Mowbray, H. (2020). In Beijing, coronavirus 2019-nCoV has created a siege mentality. *BMJ*, *368*, m516. https://doi.org/10.1136/bmj.m516

Nathiya, D., Singh, P., Suman, S., Raj, P., & Tomar, B. S. (2020). Mental health problems and impact on youth minds during the COVID-19 outbreak: Cross-sectional (RED-COVID) survey. *Social Health and Behavior*, *3*(3), 83.

Öner, N., & Le Compte, A. (1985). *Handbook of state-trait anxiety inventory*. Bogazici University.

Pavot, W., & Diener, E. (2008). The Satisfaction With Life Scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology*, *3*(2), 137–152. https://doi.org/10.1080/17439760701756946.

Pennycook, G., McPhetres, J., Zhang, Y., Lu, J. G., & Rand, D. G. (2020). Fighting COVID-19 misinformation on social media: Experimental evidence for a scalable accuracy-nudge intervention. *Psychological Science*, *31*(7), 770–780. https://doi.org/10.1177/0956797620939054.

Pramukti, I., Strong, C., Sitthimongkol, Y., Setiawan, A., Pandin, M. G. R., Yen, C.-F., Lin, C.-Y., Griffiths, M. D., & Ko, N.-Y. (2020). Anxiety and suicidal thoughts during the COVID-19 pandemic: A cross-country comparison among Indonesian, Taiwanese, and Thai university students. *Journal of Medical Internet Research*, *22*(12), e24487. https://doi.org/10.2196/24487.

Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & James, A. E. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among U.S. young adults. *Computers in Human Behavior*, *69*, 1–9. https://doi.org/10.1016/j.chb.2016.11.013.

Pulido, C. M., Mara, L.-C., Ionescu, V., & Sordé-Martí, T. (2020). Social impact of psychological research on well-being shared in social media. *Frontiers in Psychology*, *11*, 135. https://doi.org/10.3389/fpsyg.2020.00135.

Satici, B., Gocet-Tekin, E., Deniz, M. E., & Satici, S. A. (2020). Adaptation of the fear of COVID-19 Scale: Its association with psychological distress and life satisfaction in Turkey. *International Journal of Mental Health and Addiction*, https://doi.org/10.1007/s11469-020-00294-0

Satici, S. A., & Uysal, R. (2015). Well-being and problematic Facebook use. *Computers in Human Behavior*, *49*, 185–190. https://doi.org/10.1016/j.chb.2015.03.005.

Scheier, M. F., & Carver, C. S. (2003). Self-regulatory processes and responses to health threats: Effects of optimism on well-being. In J. Suls & K. A. Wallston (Eds.), *Social psychological foundations of health and illness* (pp. 395–428). Blackwell.

Scheier, M. F., Carver, C. S., & Scheier, M. F., & Carver, S. (1993). On the power of positive thinking: The benefits of being optimistic. *Current Directions in Psychological Science*, *2*(1), 26–30. https://doi.org/10.1111/1467-8721.ep10770572.

Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social Networking sites, depression, and anxiety: A systematic review. *JMIR Mental Health*, *3*(4), e50. https://doi.org/10.2196/mental.5842.

Shakya, H. B., & Christakis, N. A. (2017). Association of facebook use with compromised well-being: A longitudinal study. *American Journal of Epidemiology*, *185*(3), 203–211. https://doi.org/10.1093/aje/kww189

Shaw, R., Kim, Y., & Hua, J. (2020). Governance, technology and citizen behavior in pandemic: Lessons from COVID-19 in East Asia. *Progress in Disaster Science*, *6*, 100090. https://doi.org/10.1016/j.pdisas.2020.100090.

Spielberger, C. D. (2013). *Anxiety: Current Trends in Theory and Research*. Elsevier.

Stockdale, L. A., & Coyne, S. M. (2020). Bored and online: Reasons for using social media, problematic social networking site use, and behavioral outcomes across the transition from adolescence to emerging adulthood. *Journal of Adolescence*, *79*, 173–183. https://doi.org/10.1016/j.adolescence.2020.01.010.

Vannucci, A., Flannery, K. M., & Ohannessian, C. M. (2017). Social media use and anxiety in emerging adults. *Journal of Affective Disorders*, *207*, 163–166. https://doi.org/10.1016/j.jad.2016.08.040

Wang, P., Wang, X. X., Wu, Y., Xie, X., Wang, X. X., Zhao, F., Ouyang, M., & Lei, L. (2018). Social networking sites addiction and adolescent depression: A moderated mediation model of rumination and self-esteem. *Personality and Individual Differences*, *127*(May), 162–167. https://doi.org/10.1016/j.paid.2018.02.008.

Wegmann, E., Stodt, B., & Brand, M. (2015). Addictive use of social networking sites can be explained by the interaction of Internet use expectancies, Internet literacy, and

psychopathological symptoms. *Journal of Behavioral Addictions*, *4*(3), 155–162. https://doi.org/10.1556/2006.4.2015.021

Wood, M. A., Bukowski, W. M., & Lis, E. (2016). The digital self: How social media serves as a setting that shapes youth's emotional experiences. *Adolescent Research Review*, *1*(2), 163–173. https://doi.org/10.1007/s40894-015-0014-8.

Worsley, J. D., Mansfield, R., & Corcoran, R. (2018). Attachment anxiety and problematic social media use: The mediating role of well-being. *Cyberpsychology, Behavior, and Social Networking*, *21*(9), 563–568. https://doi.org/10.1089/cyber.2017.0555

Xie, W., & Karan, K. (2019). Predicting Facebook addiction and state anxiety without Facebook by gender, trait anxiety, Facebook intensity, and different Facebook activities. *Journal of Behavioral Addictions*, *8*(1), 79–87. https://doi.org/10.1556/2006.8.2019.09.

Yen, J.-Y Y., Yen, C.-F F., Chen, C.-S S., Wang, P.-W W., Chang, Y.-H H., & Ko, C.-H H. (2012). Social anxiety in online and real-life interaction and their associated factors. *Cyberpsychology, Behavior, and Social Networking*, *15*(1), 7–12. https://doi.org/10.1089/cyber.2011.0015.

Zhao, N., & Zhou, G. (2020). Social media use and mental health during the COVID-19 pandemic: Moderator role of disaster stressor and mediator role of negative affect. *Applied Psychology: Health and Well-Being*, *12*(4), 1019–1038. https://doi.org/10.1111/aphw.12226.