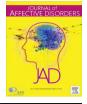


Contents lists available at ScienceDirect

## Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad



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# Social media use and anxiety in emerging adults

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#### ARTICLE INFO

Keywords: Anxiety Anxiety disorder Social media Online communication Emerging adults Young adults

### ABSTRACT

*Introduction:* Social media use is central to the lives of emerging adults, but the implications of social media use on psychological adjustment are not well understood. The current study aimed to examine the impact of time spent using social media on anxiety symptoms and severity in emerging adults. *Methods:* Using a web-based recruitment technique, we collected survey information on social media use and

anxiety symptoms and related impairment in a nationally representative sample of 563 emerging adults from the U.S. (18–22 years-old; 50.2% female; 63.3% Non-Hispanic White). Participants self-reported the amount of time they spent using various social media sites on an average day, and responded to anxiety questionnaires *Results*: Hierarchical regression revealed that more time spent using social media was significantly associated with greater symptoms of dispositional anxiety (B=0.74, 95% CI=0.59–0.90, p < 0.001), but was unrelated to recent anxiety-related impairment (B=0.06, 95% CI=0.00–0.12, p=0.051), controlling for age, gender, race/ ethnicity, and education level. Logistic regression also revealed that more daily social media use was significantly associated with a greater likelihood of participants scoring above the anxiety severity clinical cut-off indicating a probable anxiety disorder (AOR=1.032, 95% CI=1.004–1.062, p=0.028).

*Limitations:* Study limitations include the cross-sectional design and reliance on self-report questionnaires. *Conclusions:* Given the ubiquity of social media among emerging adults, who are also at high risk for anxiety disorders, the positive association between social media use and anxiety has important implications for clinicians. Gaining a more nuanced understanding of this relationship will help to inform novel approaches to anxiety treatment.

#### 1. Introduction

Anxiety is common among U.S. adults, with emerging adulthood representing a high-risk period for the onset of several anxiety disorders (Kessler et al., 2012). Anxiety disorders represent the second leading cause of disability among all psychiatric disorders, with the burden peaking during emerging and early adulthood (Whiteford et al., 2013). At the individual level, anxiety disorders are associated with significant psychiatric and medical comorbidities and role impairments in occupational and social domains (Costello et al., 2005). Societal costs are also extensive, as the annual U.S. expenditures from anxiety disorders are estimated to exceed \$42–47 billion (Whiteford et al., 2013). Given the substantial burden attributable to anxiety disorders, increasing knowledge on factors associated with anxiety in emerging adults is crucial to enhancing developmental risk models and developing novel interventions.

Social media, which refers to internet applications that enable users to generate and exchange content with others (e.g., Facebook; Kaplan

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http://dx.doi.org/10.1016/j.jad.2016.08.040

Received 6 June 2016; Received in revised form 27 July 2016; Accepted 24 August 2016 Available online 03 October 2016

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and Haenlein, 2010), has become central to the lives of emerging adults. Approximately 90% of young adults use social media, with the majority using two or more social media sites and visiting these sites daily (Perrin, 2015). The ubiquity of social media in the lives of emerging adults has led to an increasing interest in understanding the impact of social media on their psychological adjustment. Social media may serve as a key context through which emerging adults negotiate important developmental tasks, including identity development and maintaining social connections (Moreno and Whitehill, 2014). Advancements in identity formation and increases in social support achieved through social media use may enhance psychological wellbeing. However, social media use has the potential to function as a source of stress or reinforce negative self-evaluations when individuals receive undesirable feedback from others or engage in negative social comparisons (Nesi and Prinstein, 2015). The immersive experience created by the numerous distracting features of social media sites also may facilitate avoidant coping strategies and social isolation (Moreno and Whitehill, 2014), which may promote psychopathology.

Little is known about the relationship between social media use and anxiety. One study found that individuals in a Norwegian community sample of late adolescents and adults (16-88 years) endorsing more signs of addictive social media use reported more anxiety symptoms (Schou Andreassen et al., 2016). In another study comprising mostly female (88%) U.S. undergraduates, a subset (~17%) of participants reported that using Facebook made them feel anxious, and nearly half reported delaying responses to friend requests due to anxiety (Campisi et al., 2012). Finally, one study failed to find a relationship between Facebook use frequency and ratings of worry in a small sample of voung adults (Kross et al., 2013). No known studies have examined whether a broader range of social media use is related to anxiety. The homogenous and localized nature of the samples in these initial studies further limits their generalizability. The present study, therefore, aimed to investigate the association between social media use and anxiety symptomatology in a large, nationally representative sample of U.S. emerging adults. It was hypothesized that more daily social media use would be associated with elevated dispositional anxiety symptoms and more severe recent anxiety-related impairment.

#### 2. Methods

#### 2.1. Participants

Participants were a nationally representative sample of emerging adults (Age: M=20.00, SD=1.42 years; 50.2% female). The racial/ ethnic breakdown of the sample was: 63.3% Non-Hispanic White, 13.5% African American, 12.1% Hispanic/Latino, 7.6% Asian, and 3.5% Other. The sample composition of participants' highest level of education completed was: 4.0% less than high school, 56.4% high school, 29.5% two years of college, 8.5% four years of college, and 1.5% graduate school. The gender and race/ethnicity demographics of the current study closely mirror those of the U.S. population based on the 2014 U.S. Census data (50.8% Female; 77.1% Non-Hispanic White, 13.3% Black or African American, 17.6% Hispanic, 5.6% Asian) (U.S. Census Bureau, 2014), which is the year in which data were collected.

#### 2.2. Procedure

Participants were enrolled in the study through Lightspeed GMI, a web-based recruiting company specializing in global market research. The company recruits participants for their panels using multiple outlets (e-mails, social media, banner advertisements, and affiliates), which has been effective in recruiting diverse panels nationwide. Registered panelists who met the criteria of being 18-22 years-old and residing in the U.S. were sent invitations to complete the online survey. Lightspeed GMI used the response rate of the panels to determine the appropriate amount of invitations to send in order to garner 600 complete surveys, evenly split by gender and age. To ensure high quality data, digital fingerprint technology was used to eliminate duplicate responses from the same participant and validity checks were included to confirm survey engagement (e.g., tracking completion rates of each page of the survey and insufficient effort response items). Participants received 100 GMI MarketPoints (\$5 value) for completing the survey. Participants provided informed consent. All procedures were approved by the Connecticut Children's Medical Center Institutional Review Board.

#### 2.3. Measures

The Technology Use Questionnaire (Ohannessian, 2009) assessed how much time participants spent using specific media platforms on an average/typical day. The response options included: 0=none, 0.5=less than one hour, 1=about one hour, 2=about 2 h, 3=about 3 h, and 4=four or more hours. Platforms characterized as social media by the Pew Research Center (Perrin, 2015) were assessed, including Facebook, Twitter, Instagram, Snapchat, Vine, Tumblr, YouTube, and Google+. Time spent using each platform was summed across the items to indicate the total amount of time social media was used on a daily basis. The internal consistency of the total social media use score was good in the current study (Cronbach's  $\alpha$ =0.86). The item-total correlations suggested that each item was strongly and positively associated with the total social media use score (rs=0.60–0.80, ps < 0.001).

The Beck Anxiety Inventory-Trait (BAI-T; Kohn et al., 2008) assessed dispositional anxiety symptoms. Participants were instructed to rate how much, in general, they are bothered by 21 problems on a day-to-day basis. Example items include: *terrified or afraid, feeling nervous,* and *numbness or tingling.* The response options included: *Rarely or Never* (0), *Occasionally* (1), *Often* (2) and *Almost Always* (3). The BAI-T has been shown to be a valid and reliable measure of dispositional anxiety symptoms (Kohn et al., 2008). In the current study, Cronbach's  $\alpha$  was 0.96.

The Overall Anxiety Severity and Impairment Scale (OASIS; Norman et al., 2006) assessed the frequency, severity/intensity, and functional impairment related to anxiety and fear during the last week. Participants were asked to rate how often they felt anxious, the intensity and severity of their anxiety, frequency of avoidance due to anxiety or fear, and how much anxiety interfered with their relationships and ability to do things at work, school, or home. Each item was rated on a 5-point scale, with responses ranging from *Little* or *None* (0) to *Extreme* or *All the Time* (4). Higher scores indicate more severe recent anxiety-related impairment. Eight has been recommended as a cut-off score to differentiate those who have an anxiety disorder from those who do not (Moore et al., 2015). The OASIS has demonstrated strong psychometric properties (Norman et al., 2006). In our sample, Cronbach's a was 0.90.

#### 2.4. Analytic plan

The skew and kurtosis were satisfactory for all continuous variables. To test the association between social media use and anxiety, two separate hierarchical regression analyses were run with dispositional anxiety symptoms and recent anxiety-related impairment as dependent variables. Age, gender, race, and education level were included in the first step as covariates. Daily social media use was included in the second step as the independent variable. A comparable logistic regression model examined whether social media use was associated with the likelihood that a person's anxiety severity and impairment score fell above the clinical cut-off for a probable anxiety disorder. Analyses were run using SPSS version 24 (SPSS, Inc., Chicago, IL, USA). All tests were two-tailed, and p values < 0.05 were considered statistically significant.

#### 3. Results

Data from 563 emerging adults were included. A wide range of anxiety symptoms (M=12.21, SD=12.62; Range: 0–63) and anxiety severity (M=4.69, SD=4.78; Range: 0–20) was represented. Participants reported spending an average of 6.63 (SD=6.44) hours using social media on a typical day. Males reported higher daily social media use than females (Males: M=7.41, SD=7.31 vs. Females: M=5.86, SD=5.36 h; p=0.004). Social media use was not significantly associated with age, race/ethnicity, or educational status (ps > 0.05).

The fully adjusted hierarchical regression models accounted for 13.7% of the variance in dispositional anxiety symptoms, F(547) =18.52, p < 0.001, and 2.6% of the variance in recent anxiety-related impairment, F(558)=4.04, p=0.001, respectively. Higher daily social media use was significantly associated greater dispositional anxiety symptoms (*B*=0.74, 95%CI=0.59–0.90, p < 0.001; Table 1), but was

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