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Tweet Your Heart Out: The Personality Correlates and Affective Consequences of Social Media Use on Close Relationships and Psychological Health

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Abstract

Social media is a purported tool to foster and maintain close supportive relationships. However, previous research has established the negative impacts that social media use can have on well-being. The present study explored the connections between mental health and social media use to further address important gaps in understanding the psychological and interpersonal impact it may have. The personality correlates and affective consequences of social media use on close relationship satisfaction and psychological health were examined. Responses from 375 participants on the Big Five Inventory (BFI), UCLA Loneliness Scale, Social Networking Time Use Scale (SONTUS), the Multidimensional Relationship Questionnaire (MRQ), and the Affective Consequences of Social Media Use scale (ACSMU) were analyzed. Results confirmed as social media usage increased, close relationship satisfaction decreased. Findings also indicated a significant positive association between social media use and loneliness. Personality was a significant predictor of self-reported levels of social media usage. Less conscientiousness and more neuroticism were indicative of a greater frequency of social media use. Broadly, social media use was significantly associated with negative affective reactions to time spent on social media. Overall, additional research is necessary to explore and replicate the novel findings.

Keywords: Mental Health, Social Media, Personality, Loneliness, Relationship Satisfaction, Affect

Introduction

Social media, also known as social networking sites (or SNSs) can be described as websites or applications that allow users to make and share content with networks (i.e., friends, followers, etc.) they customize for themselves [1]. Social media use can serve many distint functions and have a variety of psychological and behavioral motivations [2]. As a technological advancement in communication, social media creates a mechanism through which individuals can stay "connected" to and interact with a large network of friends and family, as well as celebrities and strangers. While this connectedness would intuitively seem to enhance psychological well-being, there is a growing body of research that suggests time on social media has negative impacts on psychosocial adaptation and mental health [3, 4].

Although previous literature has explored how social media utilization affects psychological issues like depression [5], loneliness [6], and use addiction [7], there is still a need for more research to fully understand the interpersonal impact of social media. Moreover, there is a paucity of research that has completely examined the intra-individual characteristics that contribute to social media utilization behaviors and their affective, or emotional, consequences. As social media platforms continue to increase in popularity [8], it is important that our understanding of the impacts of social media consumption on mental health is further clarified. The present study attempts to address these gaps by (a) examining the effects of social media use on feelings of close relationship satisfaction, (b) investigating the emotional toll that levels of social media usage may take on psychological health, including experiences of loneliness, or social disconnectedness, and (c) exploring how personality traits influence social media use and its self-reported affective consequences.

Human beings by nature are social creatures that have an innate need to belong, which may serve as a motivation to engage in specific behaviors [9]. Fulfilling relationships are essential to mental and physical well-being. Social media has been shown as a mechanism through which these social connections can be facilitated [10]. While this medium may bring people technologically closer, overcoming obstacles to communicating with those who are far away, it is still unclear if these platforms bring people "psychologically" closer to others. Prior research has shown that technology can be used to aid relationship maintenance strategies, like communication and social contact [11]. Even so, social media use has also been shown to be damaging to romantic relationships, particularly when used as a mechanism to monitor a romantic partner's online behavior [12]. Therefore, as it relates to psychological closeness and satisfaction in close relationships, a nuanced approach to understanding social media's role may be required.

Loneliness is an important construct that can have a wide range of negative consequences on psychological adaptation. When individuals lack the requisite social interactions, they can experience

intense feelings of loneliness and isolation [6]. Loneliness can be an antecedent to serious mental health problems such as depression and suicide [13]. Previous research has shown that maintaining or expanding social networks are frequently listed as primary motivations for social media usage [14]. However, our understanding of social media's role as a means of alleviating feelings of loneliness is complicated by contradictory findings. This includes research that has shown positive associations between social media use and loneliness, negative associations between the constructs, and no association, e.g., [15, 16]. The need for continued exploration of the connections between time on social media and any affective, or emotional, consequences, such as increases or decreases in loneliness, is important to developing a better awareness of the effect on psychological health.

When attempting to understand social media use, the personal traits and motivations of the individuals using the sites have been of interest [17]. According to the Big Five theory of personality, there are five personality traits: extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience [18]. Individuals with higher levels of extraversion tend to be outgoing, socially dominant, and friendly. They are likely to be adept at navigating social connections both on- and offline. As such, they may have more positive emotional reactions to extended social media use. The neuroticism trait, also known as emotional stability, is characteristic of individuals who experience anxious behaviors and negative affect [18]. This may lead to exaggerated emotional responses and more negative perceptions of online situations. These individuals may have online relationships that mimic their offline social connections or, contrastingly, social media relationships may provide a modality through which their tendencies for negative emotional responses are attenuated.

Agreeableness describes behaviors related to caring for and consideration of others [18]. This trait may allow individuals to form deeper online connections that decrease loneliness and bolster positive affect. Individuals with higher levels of conscientiousness tend to engage in more disciplined, organized, and less impulsive behaviors [18]. This trait may allow them to maintain greater control of their emotions, thereby navigating interactions on social media more proficiently [18]. Lastly, openness to experience describes behaviors related to creativity and appreciation for the arts. This trait may have links to more positive emotional reactions to engaging in novel social media usage behaviors.

The connection between personality traits and social media use has been established in previous research, e.g., [19]. Gil de Zúñiga and colleagues found that "Big Five" personality traits were associated with frequency of use, social interaction, and news consumption on social media platforms. More specifically agreeableness, conscientiousness, and extraversion were positive predictors of different types of social media use [20]. Neuroticism, or emotional stability, and openness were negatively related to social media use behaviors. While this research provides important insights into how intra-individual traits relate to social media use behaviors as a whole, it does little to elucidate the connections between these characteristics and the emotional reactions, or affective responses, to social media utilization that may occur. Addressing this gap in the literature may allow for more targeted and informed mental health interventions for formal, treatment-based settings and informal, non-clinical settings dealing with the management of stressful psychological or emotional reactions to social media use.

The Current Study

Understanding the impact that time on social media has on interpersonal functioning and psychological health remains an area of interest as this technology continues to advance. Due to the inconsistent nature of previous findings in this area, e.g., [16],

continued scholarly inquiry into these constructs is necessary. These examinations may allow us to build greater foundational knowledge to provide evidence-based mechanisms for reducing distress for those who experience negative affect that may be associated with social media consumption. This study aimed to explore the connection between time on social media, feelings of loneliness, and satisfaction experienced in close relationships. We explored these effects primarily among college students as individuals in this age group (18-29), up to 2019, were a growing and largest demographic in social media consumption [21]. Our focus on close relationships allowed for an examination of interpersonal functioning which included friends, family members, and romantic or dating partners. This provides a broader scope than previous research which more often focuses on romantic relationships in this area [12]. Additionally, the study examined the influence of characteristic patterns of behavior, or personality, as it relates to social media use. We also explored the self-reported affective consequences of, or emotional reactions to, time spent on and off social media. Overall, the study hypotheses were as follows:

H1: Social media use will be correlated with lower levels of close relationship satisfaction.

H2: Social media use will be correlated with increased feelings of loneliness.

H3: Personality traits will be correlated with social media use.

Materials and Method

Participants

We analyzed complete responses from 375 participants on the variables of interest. Participants ranged in age from 18 to 60, (M = 20.13, SD = 3.72). 57.2% (n = 260) of the sample identified as female and 42.7% (n = 115) identified as male. Participants indicated their ethnicity as: 57% (n = 216) Non-Hispanic/Latino(a), 26% (n = 92) Hispanic/Latino(a), and 17% (n = 67) other. Racially, 71.2% (n = 267) of participants identified as White, 13% (n = 49) as Black or African American, 8.5% (n = 32) as Asian, 6.4% (n = 24) as other, .5% (n = 2) as American Indian or Alaska Native, and .3% (n = 1) as Native Hawaiian or Pacific Islander. The sample was mostly 1st-year students with 41.1% (n = 154) of participants identifying as freshmen, 23.2% (n = 87) as sophomores, 20% (n = 75) as juniors, and 15.7% (n = 59) as seniors. Participants were mostly single with 75.2% (n = 283) selecting this category, 4% (n = 12) of participants identified as married, .2% (n = 1) as widowed, .2% as divorced (n = 1), .4% (n = 1) as separated, and 20% (n = 77) as never married.

Procedures

Once institutional review board approval was secured, participants could access a link to study materials through the web survey system Qualtrics. Participants were part of the General Psychology participant pool and could self-select to participate in the research for extra credit or course credit. Individuals had to actively select "I agree to participate" to access the study measures. Individuals who selected "I do not agree to participate" were exited from the survey. Participants also had to confirm that they were 18 years of age or older. Participants completed the Big Five Inventory (BFI) [18], UCLA Loneliness Scale [22], Social Networking Time Use Scale (SONTUS) [23], The Multidimensional Relationship Questionnaire (MRQ)-Turkish version, [24], and Affective Consequences of Social Media Use Scale (ACSMU). Lastly, demographic questions were asked to obtain participants' age, gender, race/ethnicity, school status, and relationship status. Participants seeking course credit provided additional information to receive credit. Completion of study measures was approximately 30 minutes.

Measures

Big Five Inventory. Personality traits were assessed using the Big Five Inventory (BFI) Scale [18]. This 44-item scale uses dimensions

such as extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience to categorize characteristic patterns of behavior and emotional experiences. Responses were solicited on a 5-point scale, ranging from 1 (disagree strongly) to 5 (agree strongly). Higher scores on the BFI subscales indicate higher levels of the trait. The reliability coefficients for each scale in these data were: extraversion (α= .85), agreeableness (α = .77), conscientiousness (α = .79), neuroticism (α = .85), and openness (α = .77).

Multidimensional Relationship Questionnaire (MRQ)-Turkish version. The original version of the MRQ was intended to assess functioning and satisfaction in intimate, romantic relationships. Due to this fact, the Turkish version was utilized for its application to a wider range of close relationship types (e.g., family and friendships) [24]. Participants indicated responses on a 5-point scale, ranging from 1 (not at all characteristic of me) to 5 (very characteristic of me). The adapted measure is comprised of 8 primary subscales, including relationship satisfaction (α =.78). Only the relationship satisfaction subscale was of interest in this study. Example items from this scale include, "I feel myself unhappy about close relationships," "I am very happy/satisfied about my close relationships," and "I feel discouraged in close relationships."

Social Networking Time Use Scale (SONTUS). This 52-item measure reflects the amount of time individuals spend using social networks in different social situations [23]. Participants indicated their responses on an 11-point scale, ranging from 1 (not applicable to me during the past week) to 11 (I used it more than three times during the past week but spent more than 30 minutes each time). The measure is comprised of a global metric (α = .94) of social networking use and 5 subscales. Global and subscale totals can be calculated on this measure by summing items together. Higher scores on this measure indicate more time spent on social media. Due to low-reliability coefficients for the subscales, only the global metric was used in the data analysis.

UCLA Loneliness Scale. This 20-item scale measures an individual's feelings of loneliness and social isolation [22]. Participants indicated their response on a 4-point scale, ranging from 0 (I often feel this way) to 4 (I never feel this way). Before calculating a total score for loneliness, item responses were reversed such that higher scores on the scale indicate higher levels of loneliness. The reliability coefficient in this sample was α = .95.

Affective Consequences of Social Media Use Scale (ACSMU). This was initially a rationally derived 24-item survey created for this study to assess possible emotional reactions after time spent on and off social media. Items on the scale attempted to measure the self-reported interpersonal implications (i.e., feeling closer to others) and emotional consequences (e.g., generalized positive and negative affect) for time on and off social media. The items related to emotional reactions were modeled after the well-established two-factor structure of emotional reactivity [25]. A 5-point response scale, ranging from 1 (strongly disagree) to 5 (strongly agree) was used. Example items for affective consequences after time on social media included, "After spending a lot of time on social media, I feel depressed," and "After spending a lot of time on social media, I feel irritable." Example items for interpersonal implications after time off social media included, "When I don't spend a lot of time on social media, I feel closer to my friends or family," and "When I don't spend a lot of time on social media, I feel closer to the person I'm dating/ significant other." An exploratory factor analysis (EFA) using the Principal Factor axis extraction method and Varimax rotation was completed. Items with low loadings on all factors (loadings < .40) or with close loadings on multiple factors were eliminated. Factor loadings of the final items ranged from .52 to .84. Consequently, the final version of the measure consisted of 21 items that had factor

loadings greater than .40 on a single factor but did not have a cross-loading greater than .40 on any other factor.

Results of the EFA suggested that participants' responses to the affective and interpersonal consequences of time on and off social media can be separated into 7 components: Factor 1 had three items related to *feelings of closeness to others after time on social media* (α = .69), Factor 2 had three items related to *positive affective consequences after time off social media* (α = .84), Factor 3 had three items related to *negative affective consequences after time on social media* (α = .80), Factor 4 had three items related to *negative affective consequences after time off social media* (α = .86), Factor 5 had three items related to *feelings of regret after time on social media* (α = .77), Factor 6 had three items related to *feelings of closeness to others after time off social media* (α = .81), and Factor 7 had three items related to *missing out after time off social media* (α = .71). Three items related to positive affective reactions after time on social media were excluded due to cross-loadings greater than .50 on multiple factors. Higher scores for the "after time on social media" factors indicated more negative affect, less interpersonal closeness, and more regret-filled reactions to time spent on social media. Higher scores for the "after time off social media" factors indicated less negative affect, more positive affect, greater interpersonal closeness, and more concerns about missing out reactions to time spent off social media.

Results

Data Analysis

We screened the data for missing cases and normality. A total of 525 individuals responded to study measures. 150 cases were excluded due to missingness greater than 10% across all assessments. The remaining 375 participants had complete responses for most variables of interest. However, there were 2 cases missing data from the UCLA Loneliness measure (n = 373). Prior to testing the hypotheses, the data were examined for univariate normality. Assumptions of univariate normality were met for skewness and kurtosis (skewness < 3, kurtosis < 10) for the BFI subscales, MRQ relationship satisfaction, UCLA Loneliness, SONTUS and ASCMU scales [26]. A post hoc power analysis in SPSS revealed that based on the observed effects in the present study and a sample size of 375, the power achieved for the correlational analyses was greater than .90. SPSS software version 26 was used to complete the data analyses. A criterion alpha of α = .05 was set for all analyses.

Hypothesis Testing

H1: Social media use will be correlated with lower levels of close relationship satisfaction.

To test the first hypothesis, we examined the correlation between the global scores on the SONTUS and MRQ subscale scores for relationship satisfaction. A bivariate Pearson correlation analysis confirmed there was a significant correlation between scores on the SONTUS and MRQ relationship satisfaction (r = -.19, p = .001, one-tailed) indicating that as time on social media sites increased, close relationship satisfaction decreased.

H2: Social media use will be correlated with increased feelings of loneliness.

A Pearson correlation between global SONTUS scores and UCLA Loneliness scores was computed. This hypothesis was confirmed with a significant correlation between social media use and loneliness (r = .15, p = .002, one-tailed), demonstrating that increased social media use was predictive of increased feelings of loneliness.

H3: Personality traits will be correlated with social media use.

We anticipated that personality traits would be significantly correlated with social media use, although we did not hypothesize a specific direction of the association. Pearson correlations between the

BFI trait subscale scores and global SONTUS scores were analyzed. Findings indicate that conscientiousness (r = -.23, p < .0001, two-tailed) and neuroticism (r = .26, p < .0001, two-tailed) were significantly associated with social media use. In sum, lower levels of conscientiousness and higher levels of neuroticism were indicative of more frequent self-reported social media use. The remaining traits of extraversion, agreeableness, and openness were not significantly correlated with social media use scores.

Exploratory Analyses

Affective Consequences of Social Media Use and Social Networking Time

We wanted to explore the affective consequences of social media use and its association with self-reported global social media usage. Pearson correlations were calculated between the summation scores on the 7-factor scales for the ACSMU and the global SONTUS score. The inter-correlations for this analysis are reported in Table 1. For the ACSMU higher scores for the "after time on" social media factors indicated self-reported experiences of more negative affect, less

interpersonal closeness, and greater regret-filled reactions to time spent on social media. Higher scores for the "after time off" social media factors indicated self-reported endorsement of less negative affect, more positive affect, greater interpersonal closeness, and more feelings of "missing out" reactions to time spent off social media.

Analysis revealed significant associations between negative affective reactions to time spent on and off social media and global social media usage scores. Specifically, higher scores on the SONTUS were significantly associated with higher scores on ACSMU negative affective reactions (e.g., anxiety, depression, irritability) "after time on" social media factor (r = .16, p = .001) and higher scores on regret-filled reactions after time spent on social media factor (r = .11, p = .042). Higher scores on the SONTUS were also significantly associated with lower scores on ACSMU positive affective reactions (e.g., happiness, joyfulness, energy) "after time off" social media factor (r = -.11, p = .034). Therefore, participants who reported more time on social media also reported higher levels of negative affect, were more regretful of the time on social media, and reported fewer experiences of positive affect when off social media.

Scale	1	2	3	4	5	6	7	8	9
1. SONTUS	---								
2. Loneliness	.15**	---							
3. Satisfaction	-.17**	-.43**	---						
4. NA (time on)	.16**	.44**	-.36**	---					
5. NA (time off)	-.26**	-.29**	.38**	-.41**	---				
6. PA (time off)	-.11*	-.05	.13*	.25**	.16**	---			
7. Closeness to others (time on)	-.14**	.19**	-.13*	.19**	.03	.25**	---		
8. Regret (time on)	.11*	.19**	-.06	.32**	-.03	.30**	.14**	---	
9. Closeness to others (time off)	.04	.00	.16**	.22**	.08	.57**	.27**	.37**	---
10. Missing out (time off)	-.27**	-.12*	.21**	-.11*	.35**	.20**	.33**	-.01	.21**

Note. Significant correlations are highlighted. *p < .05, 2-tailed. **p < .01, 2-tailed. N = 375 except for Loneliness (n = 373). NA= Negative Affect, PA = Positive Affect.

Table 1. Inter-Correlations among Social Media Use (SONTUS), Loneliness, Relationship Satisfaction, and Affective Consequences of Social Media Use Scales

Affective Consequences of Social Media Use, Loneliness, and Relationship Satisfaction

Additional analysis explored the affective consequences of social media use on interpersonal loneliness and close relationship satisfaction. Pearson correlations between the 7-factor subscales for the ACSMU, the UCLA loneliness, and MRQ relationship satisfaction scores were computed. Findings indicated that higher levels of loneliness were significantly associated with self-reported negative affective reactions "after time on" social media factor (*r* = .44, *p* < .0001), greater feelings of less interpersonal closeness (*r* = .19), and greater regret for time spent on social media (*r* = .19, *p* < .0001, respectively). Lower levels of satisfaction in close relationships were also significantly associated with self-reported negative affective reactions after time spent on social media factor (*r* = -.36, *p* < .0001) and greater feelings of less interpersonal closeness after time on social media (*r* = -.13, *p* = .012). Higher levels of relationship satisfaction were significantly associated with increased reporting of fewer negative affective reactions to time off social

media factor (*r* = .38, *p* < .0001), more positive affective reactions to time off social media, and greater interpersonal closeness for time spent off social media (*r* = .13, *p* = .015 and *r* = .16, *p* = .002, respectively).

Affective Consequences of Social Media Use and Personality

To explore the association between the affective consequences of social media use and personality, we completed a Pearson correlation analysis between the factor scores of the ASCMU subscales and the total scores on the BFI trait scales. Of the five personality traits, neuroticism was the most consistent correlate of affective responses to time spent on and off social media. Specifically, higher levels of neuroticism were significantly associated with participants' self-reported negative affective reactions to both time spent on (r = .45, p < .0001) and time spent off social media (r = -.31, p < .0001). Neuroticism was also significantly associated with feelings of regret after time on (r = .13, p = .013) and off social media (r = -.16, p = .002). Lastly, neuroticism was significantly related to feelings of closeness after time on social media (r = .14, p = .008).

Discussion

An objective of the current study was to understand the impact of social media use on interpersonal functioning and psychological health. We further investigated the influence of personality on social media consumption and its possible affective consequences, including loneliness. Our findings indicate that social media use had broad, and mostly negative implications, for psychological health with participants reporting more frequent feelings of loneliness, more negative emotional reactions to time spent on social media, and fewer feelings of closeness and satisfaction in their close relationships.

The primary hypotheses that frequent social media use would be associated with less close relationship satisfaction and more loneliness were confirmed. The findings of this study replicate previous research that has shown that social media use is associated with decreases in interpersonal relationship quality [11]. These results also corroborate findings from other studies that show social media use has positive associations with feelings of loneliness [3, 27]. Therefore, social media users may want to consider limiting their time spent on these platforms as a means of possibly attenuating these negative social and psychological effects.

Our hypothesis that personality would predict social media use was also partially supported. Unlike previous research that found links between all five personality traits and social media behaviors [20], only neuroticism and conscientiousness were significantly associated with social media use in this sample. Our results showed that more neuroticism was predictive of increased social media usage, while more conscientiousness was associated with decreased social media usage. The differences between our findings and previous research may in part be due to how social media use was measured in this study. Although not hypothesized, our analyses further showed that loneliness was significantly associated with Big 5 personality traits, except openness to experience, including neuroticism (r = .57 p < .0001), extraversion (r = -.40, p < .0001), agreeableness (r = -.24, p < .0001), and conscientiousness (r = -.27, p < .0001) in these data. Therefore, participants' experiences of loneliness were associated with specific traits. Pre-existing behavioral tendencies may be a driving force behind users' psychological experiences on social media. Additional explorations of the mediating or moderating role that personality has on psychological reactions to social media use may be essential. These investigations may allow for a better understanding of the centrality of individual differences in the psychological impact of social media use.

A novel aspect of this research was the development of a scale of measurement for the affective reactions to time spent on and off social media. While previous research has explored social media use and psychological constructs like depression, self-esteem, and social comparison [28], we could not locate research that explicitly examined positive and negative affective reactions to social media use that was consistent with the widely accepted model of trait and state affectivity measured in the Positive Affect and Negative Affect Scale (PANAS) [25]. State and trait affectivity have long been connected to psychological health. We found participants who reported more social media usage also reported higher levels of negative affect, were more regretful of spending time on social media and reported fewer experiences of positive affect when off social media. Moreover, we found that more neuroticism was consistently associated with both negative affective reactions to time on and off social media, and feelings of closeness to others when on and off social media. From a mental health standpoint, these data point to an extensive range of negative impacts of social media use on psychosocial functioning that may be linked to individual users' enduring characteristics.

There are noteworthy limitations and valuable strengths of the present study. This research uses a primarily correlational, self-report, and cross-sectional design, hence causal inferences cannot be made. Future research should explore longitudinal and experimental measurements of the constructs of interest. Due to the sample being mostly White and female, generalizations of these findings to other racial and gender identities may be inappropriate. More robust statistical analyses, such as conditional process analyses, should also be employed to explore the possible mediating or moderating role of personality between social media use and the affective reactions to social media to provide more clarity on how these variables interact. Furthermore, given the number of statistical analyses in the current study, a Bonferroni correction or adjustment would have been appropriate to address the issue of multiple comparisons. Lastly, the overall magnitude of effects in these data ranged from small to medium for the coefficient r [29].

An important strength of this research is the novel exploration of the emotional consequences of social media use which has not been fully examined in prior research. Psychological health can be tied to our emotional reactions to any number of social stimuli [30]. The findings in this study as they relate to affective reactions to social media usage, more closely capture the dominant dimensions of affect and clarify their connection to social media use by modeling the two-factor structure of positive and negative affectivity [25]. Although we developed a new measure to assess these affective reactions, we used factor analysis and post-hoc analyses of the psychometric properties of the items, including Cronbach's reliability, on the items of the factor subscales. This strengthens our methodological rationale for use of this questionnaire and should make it possible to replicate our findings with this measure in future research. Additional research which replicates these findings may have practical applications for mental health assessments and treatment plans in clinical settings.

Conclusion

As research on social media use and mental health continues to grow, there can be decreasing doubt that for individuals who frequently use social media there may be a wide range of negative psychological consequences [3, 28]. Loneliness, which is often associated with social media use, can lead to serious mental health problems like depression and suicide thus these issues are not trivial [13, 31]. Nonetheless, it is also becoming apparent that a nuanced approach to investigating these effects, which includes specific demographic and personality characteristics of social media users and their affective responses to social media [32], is required to fully understand the impact. Overall, clinicians and policymakers may be able to assist treatment and non-treatment-seeking individuals by promoting use behaviors that may reduce the psychological harm associated with social media. These recommendations include reducing time spent on these platforms, eliminating, or at least limiting, social comparisons to others on social media, and increasing active rather than passive social media engagement [3].

Competing Interests: The authors declare that they have no competing interests.

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