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Attachment Style and Social Media Fatigue: The Role of Usage-Related Stressors, Self-Esteem, and Self-Concept Clarity

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Abstract

Social media fatigue is a subjective sense of physical and mental exhaustion, lassitude, and irritation, caused by social media use. The current research explored the association between individual differences in attachment styles and the experience of fatigue resulting from extensive social media use. Two studies examined the association between adult attachment style and Facebook fatigue, and the mediating role of stressors related to social media use, self-esteem, and self-concept clarity. The results of the first study (N = 264) revealed an association between attachment anxiety and Facebook fatigue that was mediated by Facebook social comparison and Facebook anxiety. In the second study (N = 294), attachment anxiety was also associated with Facebook fatigue and was mediated by fear of missing out and Facebook anxiety, and these mediation effects were moderated by self-concept clarity. The findings indicate that the experience of social-media fatigue varies in accordance with specific user characteristics. Additionally, they illustrate the impact of social media use on mental health, and emphasize the need to create a user experience that takes into account the stressors associated with social media use.

Keywords: social media fatigue; attachment; social comparison; fear of missing out; self-esteem; self-concept clarity

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Introduction

The global use of online social networks is extensive and increasing. This fact may lead to a phenomenon known as fatigue, a term adopted from medical literature, defined as a "subjective, unpleasant feeling of tiredness that has multiple dimensions varying in duration, unpleasantness and intensity" (Piper et al., 1987, p. 19). From a psychological perspective, fatigue is defined as a state of weariness resulting from an intense emotional experience that triggers a sense of stress (Potempa et al., 1986; Shen et al., 2006). Based on this definition, social media fatigue is defined as a subjective sense of physical and mental fatigue, lethargy, irritation, inconvenience, anger, and frustration resulting from social media use (A. R. Lee et al., 2016; Lian et al., 2018; Ravindran et al., 2014).

Research on social media fatigue to date has focused primarily on the behavioral implications of the phenomenon, and especially its effects on motivation to use social media, which is manifest as a reduction in social media use or even cessation (Luqman et al., 2017; Ravindran et al., 2014; Zhang et al., 2016). Several studies (e.g., Bright et al., 2015; Cramer et al., 2016; Dhir et al., 2018; A. R. Lee et al., 2016) have suggested several antecedents of social

media fatigue, including information overload, the need to be permanently available and quickly respond to events as they occur, and the need to continuously manage one's impression and present an idealized picture of oneself. All these factors entail an expenditure of attention and mental energy that leads to physical and emotional fatigue over time.

The current research extends existing knowledge on this topic using concepts from attachment theory (Bowlby, 1969/1982, 1973, 1980), a theoretical framework that focuses on individual experience of significant interpersonal relations. More specifically, the current study explores the association between insecure attachment patterns and social media fatigue. To gain a deeper understanding of the proposed association between attachment patterns and social media fatigue, two studies were conducted to explore the mediating role of stressors related to social media use in this association. The 2nd study also examined the role of factors related to self-concept—self-esteem and self-concept clarity—in the psychological mechanism underlying the proposed association between attachment patterns and social media fatigue.

Social Media Fatigue

To date, research on social media fatigue searched for the antecedents of this phenomenon in factors related to social media use. Previous findings (e.g., Bright et al., 2015; Dhir et al., 2018; A. R. Lee et al., 2016; Ravindran et al., 2014; Zhou & Zhang, 2019) show that the significant mental resources invested in social media activities in time lead to a sense of physical and mental fatigue. These resources are used to process the vast amount of information to which social media users are exposed, perform impression management, and meet social media friends' expectations of availability and responsiveness. These tasks fuel social media's addictive nature and transform social media into a means that depletes available mental resources that could be invested elsewhere, such as in work, study, or interpersonal relationships.

Accordingly, research on social media fatigue has indicated several factors which may lead to increase in this phenomenon. First, people have limited mental resources available for information processing, and the volume of information to which a social media user is exposed frequently exceeds these limits and leads to what is known as *information overload* (Lang, 2000). Information overload can lead to errors in judgment and generate negative emotions including stress, frustration, and confusion (Jacoby et al., 1974). Other reasons for fatigue are related to the features of social media use. For example, social media generate the expectation that people are obligated to respond to content uploaded by their friends reasonably quickly. As a result, users feel a need to be highly attentive to social media in a manner that consumes substantial mental energy and causes physical and mental fatigue (A. R. Lee et al., 2016; Stephens et al., 2017).

Second, social media users define the need to maintain, preserve, and market the value of the product called "the self" as actual job (Bright et al., 2015). Consequently, Zhu and Bao (2018) found that social media fatigue mediates the association between self-presentation concerns and passive social media use (browsing and consuming information without posting content, responding or sending messages). This finding suggests that users who are preoccupied with impression management online tend to be more passive users as a result of their experience of social media fatigue. Similarly, a recent study by E. Lee, et al. (2019) among Facebook users in Korea, found that impression management is one of the main predictors of social media fatigue.

Several recent studies offer evidence of the adverse emotional and behavioral effects of social media fatigue. For example, people who experience social media fatigue report lower life satisfaction and lower general well-being (S. B. Lee et al., 2016; Zhang et al., 2016; Zhou & Zhang, 2019). Dhir et al. (2018) found that social media fatigue mediates the associations between compulsive social media use and social anxiety, and social media use and depression, among adolescents (between ages 12 and 18). Malik et al. (2020) found that social media fatigue contributes to a decline in academic performance among young adult students (between ages 19 and 27). Afifi et al. (2018) found that adolescents who make more extensive use of social media, specifically Facebook, had higher levels of physiological symptoms of stress, such as a greater rise in the cortisol awakening response (CAR), and higher rates of the circulating protein Interleukin 6 (IL-6) in the blood (reflecting impaired immune system).

Lian et al. (2018) found that social media fatigue is positively related to procrastination, and that this association is moderated by effortful control—a key component of self-regulation that refers to one's ability to control one's emotional and behavioral responses. They have also found that the association between social media fatigue and procrastination was stronger for individuals with low effortful control, which implies that individuals with high self-control are able to control impulses to immediately satisfy the social needs aroused by social media. This allows

them to regulate and monitor the duration and manner in which they use social media, reducing and controlling the negative effects of exposure to social media.

Attachment and Social Media Use

The aim of the current research is to place the phenomenon of social media fatigue within a relevant theoretical framework, out of the assumption that individual differences may be related to the prevalence and intensity of this phenomenon. The theoretical framework which the current research refers to is attachment theory (Bowlby, 1969/1982, 1973, 1980). According to the theory, human beings are born with an innate tendency to seek proximity to a close figure who provides them with a sense of security in times of need. Whenever a threat or danger is detected, it triggers the activation of the attachment behavioral system, in purpose to achieve proximity to what Bowlby called "smarter and wiser" figure.

Attachment patterns are perceptual, emotional, and behavioral attributes shaped by relationship with the main caregiver in infancy, that characterize close interpersonal relationships throughout the lifespan. Although the theory originally posits a categorical distinction between three childhood attachment patterns—secure, anxious, and avoidant (Ainsworth et al., 1978/2015), research on attachment in adulthood generally refers to two dimensions of attachment: *Anxiety* and *Avoidance* (Bartholomew & Horowitz, 1991; Brennan et al., 1998). Attachment anxiety is characterized by doubts concerning others' availability in times of need, and the reliability of the support they will provide. As well as, lack of confidence in one's ability to achieve proximity to the attachment figure and gain a sense of security. High levels of attachment anxiety in adulthood are characterized by preoccupations with one's lovability, and concerns regards rejection and abandonment. Attachment avoidance is characterized by the lack of trust in others' ability to provide a sense of security and protection in times of need, and the belief that one must rely exclusively on oneself and avoid relying on others for satisfying one's emotional needs. High levels of attachment avoidance in adulthood are characterized by compulsive self-reliance and reluctance to engage in emotional involvement with others.

Individual differences in attachment patterns have been found to be associated with emotions, cognitions, and behaviors related to social media use. High levels of attachment anxiety have been found to be associated with greater social media activity in general (Hart et al., 2015; Jenkins-Guarnieri et al., 2013; Oldmeadow et al., 2013), and specifically with social media addiction (Monacis et al., 2017). Individuals with high attachment anxiety have a stronger tendency to use social media to satisfy social-emotional needs, such as the need for belonging (Lin, 2016; Rom & Alfasi, 2014). Although, this is not always done successfully, as evidenced by the findings from Benoit and DiTommaso's (2020) study, according to which greater attachment anxiety predicts less perceived online social support.

Previous studies on the association between attachment patterns and social media usage (e.g., Flynn et al., 2018; Harari & Gosling, 2016; Monacis et al., 2017) found that individuals high on attachment anxiety tend to be more vulnerable to the effects of stressors related to social media use, and experience the psychological effects of such use more intensely. In addition, they are sensitive to the attention that their social media activity receives, and are concerned by how they are evaluated by their social media friends (Hart et al., 2015; Oldmeadow et al., 2013). Accordingly, their social media activity is motivated by a need for attention and reassurance, and anticipation of others' responsivity to their activity (Hart et al., 2015; Rom & Alfasi, 2014). In a study that examined the negative association between problematic social media use and psychological well-being, Young et al. (2020) found this association to be stronger among individuals with high levels of attachment anxiety and low levels of attachment avoidance.

Similarly, studies (e.g., Flynn et al., 2018; Harari & Gosling, 2016) found that social media use has an adverse addictive impact on the functioning of individuals with high attachment anxiety, which is manifest in social media use at the expense of time and resources required for work, school, and social activities. Flynn et al. (2018) studied the association between attachment patterns and stressors related to Facebook use, and found that attachment anxiety predicts higher levels of social comparison, impression management, and self-exposure on social media.

Studies have also found an association between attachment patterns and the effects of social media use on factors related to romantic relationships. For example, Emery et al. (2014) found that the greater an individual's insecurity about their partner's feelings, the greater visibility the relationship was given on Facebook. More specifically, users high on attachment anxiety had a greater tendency to share information about their relationships, while high attachment avoidance users tended to expose less information about their relationships on Facebook. Marshall

et al. (2013) found that attachment anxiety is positively related, and attachment avoidance is negatively related, to Facebook-related jealousy (for example, when a romantic partner accepts a friendship request from a former romantic partner) and to Facebook-related surveillance of one's partner activity. Flynn et al. (2018) found that users with high attachment anxiety had a greater tendency to share on Facebook content related to conflicts with their romantic partners.

Study 1

The aim of the study was to examine the association between individual differences in attachment patterns and social media fatigue. It was predicted that individuals with high attachment anxiety will exhibit a stronger tendency toward social media fatigue as a result of the negative effects of stressors related to social media use. The association between attachment patterns and social media fatigue was examined controlling for Facebook use. That is, in line with previous studies that showed that intensive social media use may lead to social media fatigue independent of users' characteristics (Malik et al., 2020; Zheng & Lee, 2016). No hypothesis regarding the association between attachment avoidance and social media fatigue was proposed, in view of the limited (or absent) associations found in previous research between attachment avoidance and social-media-use-related stressors (e.g., Flynn et al., 2018; Hart et al., 2015).

H1: Attachment anxiety will predict Facebook fatigue.

To gain a deeper understanding of the underlying mechanisms of social media fatigue, the current study also examines the roles of three stressors related to social media: *social comparison*, *fear of missing out*, and *Facebook anxiety*, which are expected to mediate the association between attachment anxiety and social media fatigue.

Mediator: Facebook Social Comparison

People with high attachment anxiety tend to be more vulnerable and sensitive to feedback from others (Carnelley et al., 2007). Social media users' exposure, albeit indirectly, to feedback from others, in the form of comparisons to other people's achievements and lifestyles, may constitute a stressor that exacerbates the psychological effects of social media use, and leads to physical and mental fatigue as a result of social media use over time.

The specific association between social comparison on social media and social media fatigue was examined in a study by Cramer et al. (2016), who found that people who were motivated to engage in social comparison for the sake of self-improvement and self-enhancement, had a greater tendency to experience Facebook fatigue as a result of social comparison on social media. Similarly, Malik et al. (2020) found online social comparison to be a significant predictor of social media fatigue.

H2: Facebook social comparison will mediate the association between attachment anxiety and Facebook fatigue.

Mediator: Fear of Missing Out

Fear of missing out (FoMO) is defined as the concern of missing out on or being disconnected or absent from an experience that others have and enjoy (Przybylski et al., 2013). Social media users are constantly and intensively exposed to other people's new and exciting experiences. Accordingly, increased usage social media has been found to be associated with high levels of FoMO (Baker et al., 2016; Beyens et al., 2016; Wolniewicz et al., 2018). Blackwell et al. (2017) found that FoMO mediates the association between attachment anxiety and social media addiction. Dhir et al. (2018) examined the association between FoMO and social media fatigue, and revealed inconclusive findings: In one study they found a statistically significant yet weak association between FoMO and social media fatigue, yet found no association in a second study. Although these findings are inconclusive, there are grounds to assume that FoMO constitutes a stressor related both to attachment anxiety and to social media use, and therefore may exacerbate the sense of fatigue resulting from social media use.

H3: Fear of missing out will mediate the association between attachment anxiety and Facebook fatigue.

Mediator: Facebook Anxiety

Facebook anxiety is a term coined by Rom and Alfasi (2014), who describe behaviors on social media, and specifically Facebook, that share features with romantic attachment anxiety. Facebook anxiety refers to social media activities motivated by a user's excessive search for confirmation from others, approval seeking, demand for attention, and contempt for disregard or disinterest in the contents that the user shares. Rom and Alfasi (2014) found a positive association between attachment anxiety and Facebook anxiety, which demonstrates that Facebook behaviors of people with high attachment anxiety tend to be similar to their behaviors in close relationships. Individuals with high levels of attachment anxiety tend to feel a strong need for confirmation that they are wanted and loved in their relationships, they tend to present excessive demands for attention and to express frustration at a lack of others' availability and responsiveness (Davila, 2001; Shaver et al., 2005). In view of these findings, it is expected that the stress-related social media behaviors of individuals with high attachment anxiety, reflected in high Facebook anxiety, will lead to a sense of fatigue and lethargy over time as a result of the emotional demands that these behaviors pose.

H4: Facebook anxiety will mediate the association between attachment anxiety and social media fatigue.

Method

Participants and Procedure

Participants were Israeli Facebook users ($N = 264$, 65% Female, $M_{\text{age}} = 30.20$, Range: 18–64, $SD = 9.55$; 38% single, 20% in a dating relationship, 40% married, 2% divorced) recruited via sponsored advertisements on Facebook news-feed and designated Facebook groups for recruiting participants for psychology studies, inviting them to participate in a study on the "link between people's thoughts and feelings, and social network sites usage". Participants took part in the study voluntarily, and received a URL link to the study's survey that was created on the Google Forms. The survey included general demographic items, and measures of Facebook activity, adult attachment patterns, Facebook fatigue, Facebook social comparison, social-media-related FoMO, and Facebook anxiety. Using G*Power (Erdfelder et al., 1996) post-hoc power analysis was calculated, and it was found that with a sample size of 264 an a-priori $\alpha = .05$ and seven predictors, a regression design testing a deviation from zero could detect effects of power that equals to .99, which exceeds the accepted .80 in the literature (MacCallum et al., 1996).

Measures and Descriptive Statistics

Adult Attachment patterns were assessed by the Experiences in Close Relationship Scale (ECR)-Short Form (Wei et al., 2007), which measures attachment patterns in adult romantic relationships. Participants were instructed to think about their prototype experiences in romantic relationships, and rate their agreement with each item on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In total, six items assessed Attachment Anxiety (e.g., *I worry that romantic partners won't care about me as much as I care about them*; $M = 3.25$, $SD = 1.21$, Cronbach's $\alpha = .70$) and six items assessed Attachment Avoidance (e.g., *I try to avoid getting too close to my partner*; $M = 2.44$, $SD = 1.13$, $\alpha = .73$).

Facebook Activity levels were assessed by a modified version of the Social Media Engagement Questionnaire (SMEQ; Przybylski et al., 2013). Participants were asked to state the daily average time they spend on Facebook (1 = *less than 30 min.*, 2 = *30 to 60 min.*, 3 = *1 to 2 hours*, 4 = *2 to 3 hours*, 5 = *3 hours or more*), and how often (1 = *not at all*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *all the time*) they use Facebook on the following occasions: in the middle of a class or meeting at work, when they have dinner with their family or partner, when they hang out with friends, just before they go sleep, and just after they wake up. An average of all six items was calculated to indicate general level of Facebook activity ($M = 2.86$, $SD = 0.87$, $\alpha = .85$).

Facebook Fatigue was assessed using four items modified from Bright et al.'s (2015) measure of Social Media Fatigue. Participants were asked to indicate their agreement with the following statements: *I am frequently overwhelmed by the amount of information available on Facebook*; *The amount of information available on Facebook makes me feel tense and overwhelmed*; *I am frequently feeling exhausted after using Facebook*; and *Using Facebook*

makes me tense and nervous. Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating greater Facebook fatigue ($M = 3.66$, $SD = 1.40$, $\alpha = .71$).

Facebook Social Comparison was assessed using seven items modified from the Iowa-Netherlands Comparison Orientation Measure (INCOM; Gibbons & Buunk, 1999), which included items such as *When I'm on Facebook, I compare what I've achieved in life to what others have archived*; and *When I'm on Facebook, I compare the way I'm doing things to the way that others do*. Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores representing higher tendency to compare oneself with others on Facebook ($M = 3.17$, $SD = 1.29$, $\alpha = .83$). Factor analysis using Varimax rotation indicated good single factor loading (Eigenvalue = 3.58, 51.11% of variance).

Fear of Missing Out was assessed using seven items modified from Wegmann et al.'s (2017) measure of Online-Specific FoMO. Participants were asked to indicate their agreement with statements such as *I continuously log-on to Facebook in order not to miss out on anything*; and *I fear not to be up-to-date with what's going on Facebook*. Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating higher levels of FoMO ($M = 2.80$, $SD = 1.23$, $\alpha = .83$).

Facebook Anxiety was assessed using Rom and Alfasi's (2014) measure of Facebook-Related Attachment Anxiety, which is manifested in excessive reassurance seeking, need of approval, demands for care and attention, and resentment at others' lack of availability and interest. Participants were asked to indicate their agreement with the following five statements, which reflect those themes: *I get frustrated if my Facebook friends are not available when I need them*; *I would like my Facebook friends to show interest in what I post, as much as I show interest in what they post*; *I need a lot of reassurance (likes, comments etc.) from my Facebook friends on things that I post*; *If I can't get my Facebook friends to show interest in things I post, I get upset and angry*; and *I worry that my Facebook friends won't like the things that I post*. Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating higher levels of Facebook-related attachment anxiety ($M = 2.26$, $SD = 1.22$, $\alpha = .85$).

Results

Preliminary Analyses

Zero-order correlations for the study's variables are presented in Table 1.

Table 1. Zero-Order Correlations for Study 1 Variables.

	1	2	3	4	5	6
1. Attachment Anxiety						
2. Attachment Avoidance	.29**					
3. Facebook Activity	.23**	.08				
4. Facebook Fatigue	.23**	.10	.18*			
5. Facebook Social Comparison	.37**	.11	.30**	.37**		
6. Fear of Missing Out	.29**	.08	.61**	.32**	.48**	
7. Facebook Anxiety	.42**	.19*	.27**	.36**	.50**	.51**

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

As predicted, attachment anxiety was positively associated with Facebook Fatigue, as well as with the three stress factors associated with Facebook Activity: Facebook Social Comparison, FoMO, and Facebook Anxiety. Facebook Fatigue was also associated with Facebook Social Comparison, FoMO, and Facebook Anxiety. Also, Attachment Avoidance was not correlated with Facebook Fatigue. Of the three stress factors associated with Facebook Activity, Attachment Avoidance was correlated only with Facebook Anxiety. Finally, Facebook Activity was correlated with both Attachment Anxiety and Facebook Fatigue, and hence was controlled in the following mediation analysis.

Hypotheses Testing

To test the study's hypotheses, a path analysis of direct and indirect effects (Baron & Kenny, 1986; Hayes, 2009) was performed using PROCESS add-on (v.3.3) to SPSS Statistics (v.25) (see Table 2).

The results indicate that attachment anxiety predicts Facebook Fatigue, above and beyond the effect of Facebook activity ($\beta = .20, p = .001$), confirming H1. In addition, attachment anxiety predicted Facebook social comparison ($\beta = .27, p < .001$), FoMO ($\beta = .20, p = .001$), and Facebook anxiety ($\beta = .39, p < .001$), all while controlling for Facebook activity, age, and gender. Additionally, findings indicate that when controlling for the effects of attachment anxiety, Facebook activity, age, and gender, Facebook social comparison ($\beta = .19, p = .005$), FoMO ($\beta = .19, p = .039$), and Facebook anxiety ($\beta = .18, p = .015$) predicted Facebook fatigue. Importantly, when adding Facebook social comparison, FoMO, and Facebook anxiety to the model, the direct path of attachment anxiety to Facebook fatigue became insignificant ($\beta = .03, p = .586$), indicating a full mediation effect.

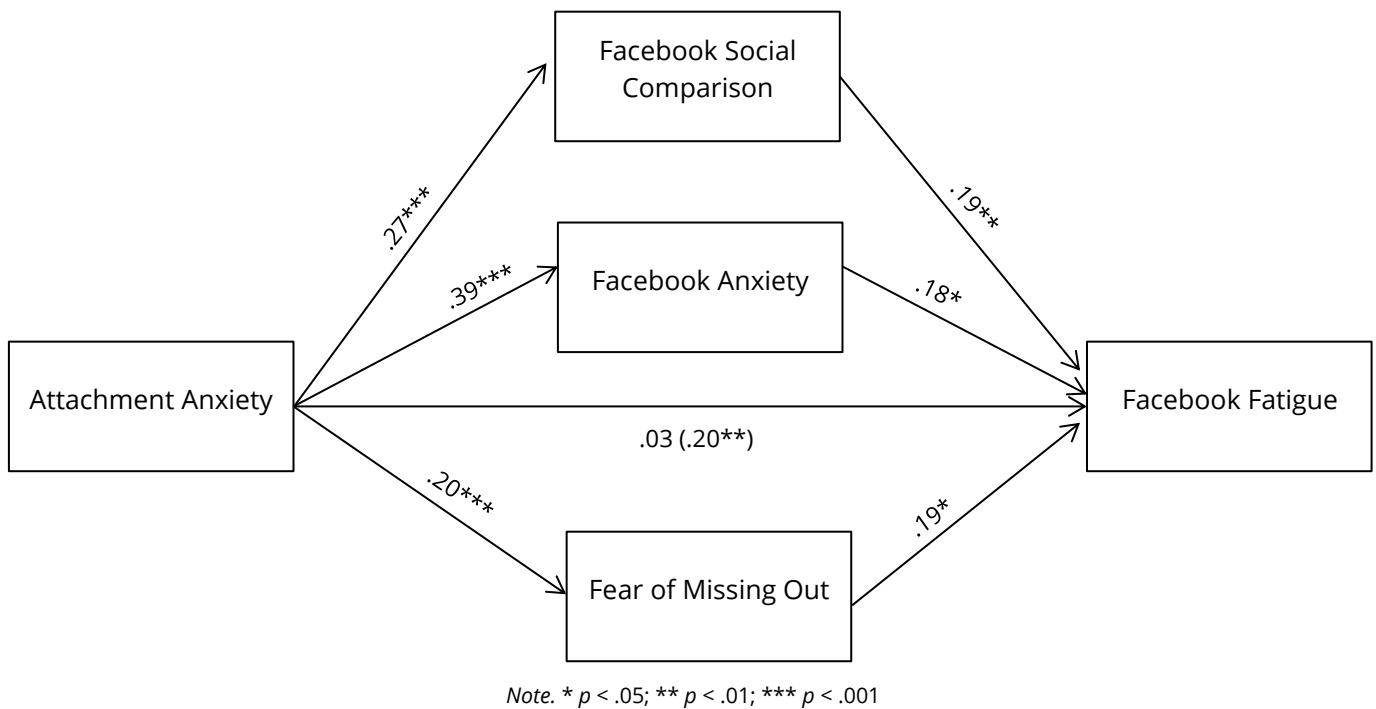
Table 2. Direct and Indirect Effects of Study 1 Variables on Facebook Fatigue.

Dependent Variable	Predictor	B (se)	β	p	t
Facebook Fatigue	Age	.00 (.01)	.01	.801	.25
	Gender	.18 (.18)	.06	.324	.99
	Attachment Anxiety	.23 (.07)	.20	.001	3.15
	Facebook Activity	.20 (.10)	.13	.038	2.05
$R^2 = .07, F(4, 259) = 4.92, p < .001$					
Facebook Social Comparison	Age	.01 (.01)	.07	.225	1.21
	Gender	.03 (.16)	.01	.852	.19
	Attachment Anxiety	.29 (.06)	.27	< .001	4.68
	Facebook Activity	.35 (.09)	.24	< .001	4.15
$R^2 = .16, F(4, 259) = 12.76, p < .001$					
Fear of Missing Out	Age	.04 (.01)	.29	< .001	6.47
	Gender	-.25 (.11)	-.09	.031	-2.17
	Attachment Anxiety	.21 (.05)	.20	.001	4.45
	Facebook Activity	.82 (.06)	.58	< .001	12.91
$R^2 = .50, F(4, 259) = 65.89, p < .001$					
Facebook Anxiety	Age	.00 (.01)	.03	.590	.54
	Gender	-.27 (.14)	-.10	.062	-1.87
	Attachment Anxiety	.39 (.06)	.39	< .001	6.84
	Facebook Activity	.26 (.08)	.18	.001	3.25
$R^2 = .22, F(4, 259) = 18.33, p < .001$					
Facebook Fatigue	Age	-.01 (.01)	-.06	.354	-.93
	Gender	.23 (.17)	.09	.101	1.64
	Attachment Anxiety	.04 (.07)	.03	.586	.55
	Facebook Activity	-.10 (.12)	-.06	.420	-.81
	Facebook Social Comparison	.21 (.07)	.19	.005	2.84
	Fear of missing out	.21 (.10)	.19	.039	2.07
	Facebook Anxiety	.20 (.08)	.18	.015	2.46
$R^2 = .20, F(7, 256) = 9.23, p < .001$					

Note. Gender coded Male = 1, Female = 2.

Examination of the indirect path between attachment anxiety to Facebook fatigue through Facebook social comparison, controlling for Facebook activity, age, and gender, was significant (95% confidence interval 0.01 to 0.11), which confirms that Facebook social comparison mediates the effect of attachment anxiety on Facebook Fatigue, and supports H2. Similarly, the indirect path between attachment anxiety to Facebook fatigue through Facebook anxiety was significant (95% CI [0.01, 0.13]), confirming H4, that Facebook anxiety mediates the association between attachment anxiety and Facebook fatigue. However, H3 was not supported: The indirect path between attachment anxiety to Facebook fatigue through FoMO was non-significant (95% CI [-0.01, 0.09]), indicating that FoMO does not mediate the relationship between attachment anxiety and Facebook fatigue. The direct and indirect effects of attachment anxiety, and the mediators, on Facebook fatigue, are presented in Figure 1.

Figure 1. Path Model Depicting Mediation of the Relation Between Attachment Anxiety and Facebook Fatigue by Stress Factors Associated With Facebook Use (Study 1).



Study 2

Study 1 provided evidence of the association between attachment anxiety and social media fatigue, and of the mediating role of social-media-related stressors in this association. Study 2 was designed to replicate these findings in a larger sample and to examine the role of self-concept-related variables in the association between attachment and social media fatigue. Specifically, Study 2 examines the moderating roles of self-esteem and self-concept clarity in the mediation effects of social-media-use-related stressors on the association between attachment anxiety and social media fatigue.

Mediation Moderator: Self-Esteem

The self-concept of individuals with high levels of attachment anxiety contains doubts about their self-worth and self-efficacy, and as consequence they become over-dependent on the approval of others (Pietromonaco & Barrett, 1997; Schmitt & Allik, 2005). When individuals high in attachment anxiety compare themselves to the idealized portrayals of their friends on social media, such comparisons may further exacerbate their doubts of their own self-worth. Over time, this experience can create an emotional burden that could be manifested in emotions typical of social media fatigue: a sense of lethargy, frustration, and desire to distance oneself from the arena in question. In support of this argument, Cramer et al. (2016) found that people with low self-esteem had a greater tendency than high self-esteem individuals to avoid or reduce their Facebook use due to the social comparison that it evokes.

Accordingly, it was predicted that self-esteem will moderate the mediation role of Facebook social comparison in the association between attachment anxiety and Facebook fatigue. That is, Facebook social comparison will mediate the association between attachment anxiety and Facebook fatigue for individuals with low self-esteem, but not for those with high self-esteem. Similarly, it is expected that the two remaining mediators examined in Study 1 (FoMO and Facebook Anxiety) will also be moderated by self-esteem in the same direction.

H1a: Self-esteem will moderate the mediation of Facebook social comparison of the association between attachment anxiety and Facebook fatigue.

H1b: Self-esteem will moderate the mediation of Fear of Missing Out of the association between attachment anxiety and Facebook fatigue.

H1c: Self-esteem will moderate the mediation of Facebook anxiety of the association between attachment anxiety and Facebook fatigue.

Mediation Moderator: Self-concept Clarity

Clarity of the self-concept is defined as “the extent to which the contents of an individual’s self-concept (e.g., perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p. 141). Mikulincer and Shaver (2007) argued that insecurely attached individuals’ mental representations of self are predominantly negative, but also inconsistent and suffer from lack of coherence and stability. Lee (2014) found that people with low self-concept clarity tend to engage more frequently in Facebook social comparison and to consequently experience negative emotions, such as anxiety and depression, than people with high self-concept clarity.

Hence, it was predicted that the mediation role of stressors associated with social media use will be moderated by self-concept clarity. That is, that social-media-related stressors will mediate the association between attachment anxiety and Facebook fatigue for individuals with low self-concept clarity, but not for those with high self-concept clarity.

H2a: Self-concept clarity will moderate the mediation of Facebook social comparison of the association between attachment anxiety and Facebook fatigue.

H2b: Self-concept clarity will moderate the mediation of Fear of Missing Out of the association between attachment anxiety and Facebook fatigue.

H2c: Self-concept clarity will moderate the mediation of Facebook anxiety of the association between attachment anxiety and Facebook fatigue.

Method

Participants and Procedure

Participants were Israeli Facebook users ($N = 294$, 53% Female, $M_{\text{age}} = 29.10$ Range: 18–57, $SD = 6.26$; 35% single, 20% in a dating relationship, 43% married, 2% divorced). Participants were recruited via *Panel 4 All*, an online survey panel. They were rewarded with purchase coupons in accordance with the scoring criteria of the online panel for their participation in the study. Participants were asked to complete the study’s survey, which included general demographic information, and measures of Facebook activity, adult attachment patterns, Facebook fatigue, Facebook social comparison, social-media-related FoMO, Facebook anxiety, self-esteem, and self-concept clarity. Using G*Power (Erdfeelder et al., 1996) post-hoc power analysis was calculated, and it was found that with a sample size of 294 an a-priori $\alpha = .05$ and seven predictors, a regression design testing a deviation from zero could detect effects of power that equals to .99, which exceeds the accepted .80 in the literature (MacCallum et al., 1996).

Measures and Descriptive Statistics

Adult Attachment Patterns were assessed by the Experiences in Close Relationship Scale (ECR)-Short Form (Wei et al., 2007) as in Study 1 (Attachment Anxiety: $M = 3.46$, $SD = 1.23$, Cronbach’s $\alpha = .78$; Attachment Avoidance: $M = 2.79$, $SD = 1.07$, $\alpha = .73$).

Facebook Activity levels were assessed by the Social Media Engagement Questionnaire (SMEQ; Przybylski et al., 2013) as in Study 1 ($M = 2.83$, $SD = 0.76$, $\alpha = .80$).

Facebook Fatigue was assessed by four items from Bright et al.’s (2015) measure of Social Media Fatigue, and additional four items that tap into the experience of exhaustion and fatigue as result from using Facebook: *I feel like using Facebook often takes too much mental energy away from me; I need some time to relax after being on Facebook for a long time; It takes me a while to get back to concentrating on other things after being on Facebook for a long time; and If I've been on Facebook for a long time I have no energy afterwards to do other things.* Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) as in Study 1 ($M = 3.22$, $SD = 1.53$). Internal constancy as measured

by Cronbach's alpha ($\alpha = .90$), and factor analysis using varimax rotation indicated that all eight items were loaded on one factor (Eigenvalue = 4.84, 60.58% of variance).

Facebook Social Comparison was assessed using modified items from the Iowa-Netherlands Comparison Orientation Measure (INCOM; Gibbons & Buunk, 1999) as in Study 1 ($M = 3.55$, $SD = 1.18$, $\alpha = .80$).

Fear of Missing Out was assessed using Wegmann et al.'s (2017) measure of Online-Specific FoMO as in Study 1 ($M = 3.09$, $SD = 1.32$, $\alpha = .87$).

Facebook Anxiety was assessed using Rom and Alfasi's (2014) measure of Facebook-Related Attachment Anxiety as in stud 1 ($M = 2.59$, $SD = 1.35$, $\alpha = .86$).

Self-Esteem was assessed using Rosenberg's (1965) Self-Esteem Scale. Participants rated how they feel about themselves in general (e.g., *I feel that I am a person of worth, at least on an equal plane with others*). Items were rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and a mean score was computed such that higher scores indicate higher state self-esteem ($M = 5.10$, $SD = 1.16$, $\alpha = .88$).

Self-Concept Clarity was assessed by the Self-Concept Clarity Scale (SCC; Campbell et al., 1996). This 12-item self-report measure examines the extent to which an individual's mental representations of the self are certain, stable, and consistent (e.g., *My beliefs about myself often conflict with one another*). Items are rated on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and were recoded such that higher scores indicate greater self-concept clarity ($M = 4.62$, $SD = 1.39$, $\alpha = .92$).

Results

Preliminary Analyses

Zero-order correlations for Study 2 variables are presented in Table 3.

Table 3. Zero-Order Correlations for Study 2 Variables.

	1	2	3	4	5	6	7	8
1. Attachment Anxiety								
2. Attachment Avoidance	.19**							
3. Facebook Activity	.09	.02						
4. Facebook Fatigue	.36**	.19**	.15*					
5. Facebook Social Comparison	.36**	.22**	.27**	.38**				
6. Fear of Missing Out	.27**	.18**	.52**	.40**	.48**			
7. Facebook Anxiety	.41**	.30**	.29**	.44**	.59**	.63**		
8. Self-Esteem	-.43**	-.34**	-.05	-.27**	-.33**	-.14*	-.28**	
9. Self-Concept Clarity	-.50**	-.34**	-.11*	-.46**	-.43**	-.22**	-.41**	.60**

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

Consistent with Study 1's results, attachment anxiety was positively associated with Facebook fatigue, as well as with additional variables correlated with Facebook Fatigue: Facebook social comparison, FoMO, and Facebook anxiety. Self-esteem and self-concept clarity were negatively associated with both attachment anxiety and attachment avoidance, and with all remaining variables related to Facebook usage. Hence, the criteria for the proposed moderated mediation model were met. In difference from Study 1, a weak correlation emerged between attachment avoidance and Facebook fatigue ($r = .19$, $p = .002$).

Hypotheses Testing

To test the study's hypotheses, a path analysis of direct and indirect effects (Baron & Kenny, 1986; Hayes, 2009) was performed, using PROCESS add-on (v.3.3) to SPSS Statistics (v.25) (see Table 4).

As in Study 1, attachment anxiety predicted Facebook fatigue ($\beta = .35$, $p < .001$), above and beyond the effect of Facebook activity, age, and gender. Attachment anxiety also predicted Facebook social comparison ($\beta = .16$, $p = .010$), FoMO ($\beta = .18$, $p = .001$), and Facebook anxiety ($\beta = .25$, $p < .001$), controlling for the effects of Facebook activity, self-esteem, self-concept clarity, age, and gender. In addition, Facebook social comparison ($\beta = .13$,

$p = .048$), Facebook anxiety ($\beta = .18, p = .014$), and, in difference from Study 1, also FoMO ($\beta = .23, p = .003$) predicted Facebook fatigue, controlling for attachment anxiety, Facebook activity, age, and gender.

Table 4. Direct and Indirect Effects of Study 2 Variables on Facebook Fatigue.

Dependent Variable	Predictor	B (se)	β	p	t
Facebook Fatigue	Age	.01 (.01)	.02	.674	.42
	Gender	.07 (.17)	.02	.676	.42
	Attachment Anxiety	.47 (.07)	.35	< .001	6.36
	Facebook Activity	.22 (.11)	.11	.042	2.04
$R^2 = .14, F(4, 288) = 11.98, p < .001$					
Facebook Social Comparison	Age	-.01 (.01)	-.01	.924	-.09
	Gender	-.14 (.12)	-.06	.256	-1.14
	Attachment Anxiety	.15 (.06)	.16	.010	2.61
	Facebook Activity	.34 (.08)	.22	< .001	4.25
	Self-Esteem	-.08 (.07)	-.08	.244	-1.17
	Self-Concept Clarity	-.24 (.06)	-.29	< .001	-4.18
$R^2 = .27, F(6, 285) = 17.30, p < .001$					
Fear of Missing Out	Age	.03 (.01)	.15	.002	3.17
	Gender	-.30 (.13)	-.11	.021	-2.32
	Attachment Anxiety	.20 (.06)	.18	.001	3.31
	Facebook Activity	.84 (.08)	.49	< .001	10.24
	Self-Esteem	.03 (.07)	.03	.663	.47
	Self-Concept Clarity	-.12 (.07)	-.12	.056	-1.92
$R^2 = .37, F(6, 285) = 28.16, p < .001$					
Facebook Anxiety	Age	.01 (.01)	.05	.964	.96
	Gender	-.37 (.14)	-.14	.008	-2.69
	Attachment Anxiety	.28 (.6)	.25	< .001	4.31
	Facebook Activity	.41 (.09)	.23	< .001	4.63
	Self-Esteem	.01 (.07)	.01	.910	.11
	Self-Concept Clarity	-.27 (.06)	-.28	< .001	-4.15
$R^2 = .30, F(6, 285) = 20.57, p < .001$					
Facebook Fatigue	Age	.00 (.01)	.00	.995	.01
	Gender	.25 (.16)	.08	.122	1.55
	Attachment Anxiety	.23 (.07)	.18	.001	3.29
	Facebook Activity	-.15 (.20)	-.08	.204	-1.27
	Facebook Social Comparison	.16 (.08)	.13	.048	1.92
	Fear of missing out	.26 (.09)	.23	.003	2.97
	Facebook Anxiety	.21 (.08)	.18	.014	2.47
	$R^2 = .28, F(7, 285) = 15.61, p < .001$				

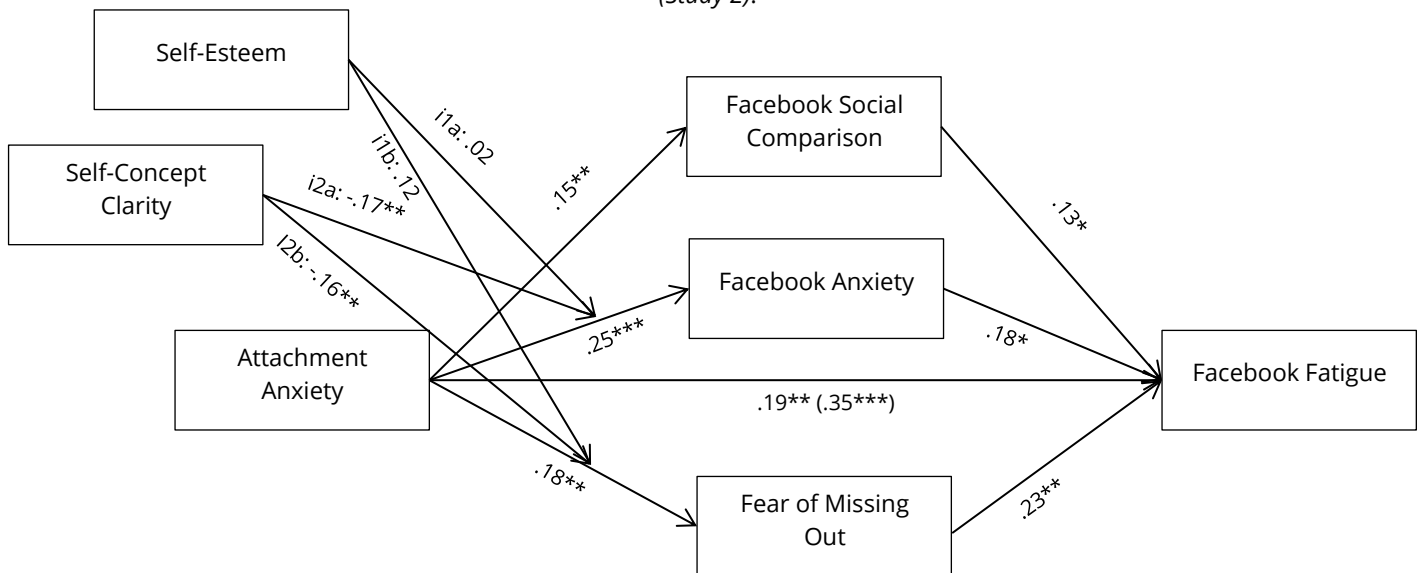
Note. Gender coded Male = 1, Female = 2.

The direct and indirect effects of attachment anxiety on Facebook fatigue are presented in Figure 2.

The indirect path between attachment anxiety to Facebook fatigue through Facebook social comparison was marginally significant (Sobel's $Z = 1.89, p = .058$). There were no indirect effects of attachment anxiety on Facebook fatigue through Facebook social comparison when self-esteem (H1a) and self-concept clarity (H2a) were entered into the model.

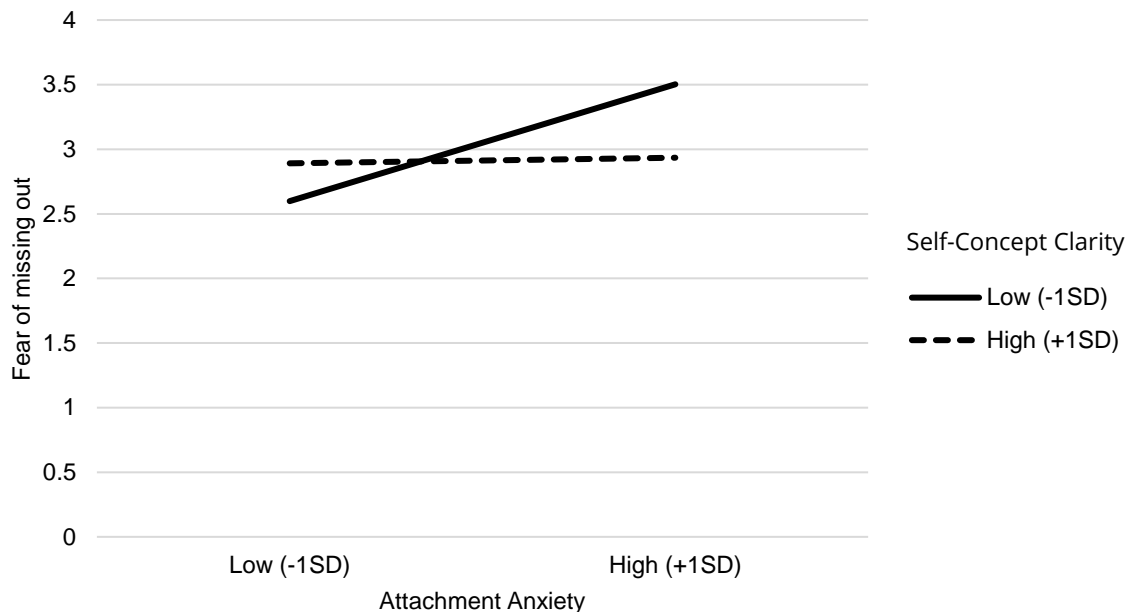
FoMO mediated the association between attachment anxiety and Facebook fatigue at low level of self-concept clarity ($-1SD$; 95% CI [0.02, 0.18]), but not at high levels of self-concept clarity ($+1SD$; 95% CI [-0.02, 0.06]). Simple slope analysis (Aiken et al., 1991; See Figure 3) of the interaction between attachment anxiety and self-concept clarity, when predicting FoMO, reveals that attachment anxiety is a positive predictor of FoMO ($\beta = .34, p < .001$, 95% CI [0.19, 0.54]) when self-concept clarity is low ($-1SD$), but not when self-concept clarity is high ($+1SD$; $\beta = .02, p = .86$, 95% CI [-0.18, 0.22]).

Figure 2. Path Model Depicting Moderated Mediation Effects of the Association Between Attachment Anxiety and Facebook Fatigue (Study 2).



Note. * $p < .05$, ** $p < .01$, *** $p < .001$; i1 = Interaction Attachment Anxiety x Self-Esteem, i2 = Interaction Attachment Anxiety x Self-Concept Clarity.

Figure 3. Interaction Effect Between Attachment Anxiety and Self-Concept Clarity on Fear of Missing Out.

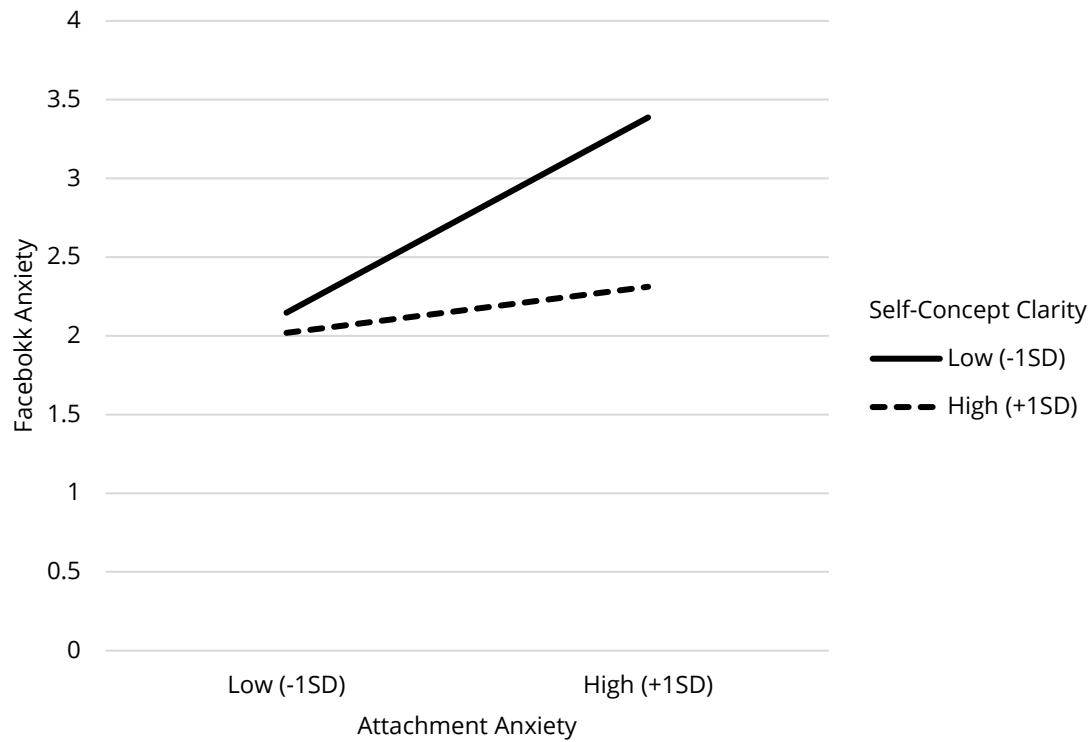


Hence, H2b was confirmed: Self-concept clarity moderated the mediation effect of FoMO, such that FoMO mediated the association between attachment anxiety and Facebook fatigue only when participants had low levels of self-concept clarity. However, H1b was not supported, as there was no significant interaction effect of attachment anxiety and self-esteem on FoMO ($\beta = .12$, $p = .074$, 95% CI [-0.01, 0.23]).

Finally, Facebook anxiety mediated the association between attachment anxiety and Facebook fatigue at low levels of self-concept clarity (-1SD; 95% CI [0.01, 0.21]), but not at high levels of self-concept clarity (+1SD; 95% CI [-0.02, 0.10]). Simple slope analysis (See Figure 4) of the interaction between attachment anxiety and self-concept clarity, when predicting Facebook anxiety, reveals that attachment anxiety is a positive predictor of Facebook anxiety ($\beta = .41$, $p < .001$, 95% CI [0.32, 0.69]) when self-concept clarity is low (-1SD), but not when self-concept clarity is high (+1SD; $\beta = .11$, $p = .272$, 95% CI [-0.09, 0.33]).

Hence, H2c was confirmed: Self-concept clarity moderated the mediation effect of Facebook anxiety, such that Facebook anxiety mediated the association between attachment anxiety and Facebook fatigue only when participants had low levels of self-concept clarity. H2c was not supported, as there was no significant interaction effect of attachment anxiety and self-esteem on Facebook anxiety ($\beta = .02$, $p = .974$, 95% CI [-0.12, 0.12]).

Figure 4. Interaction Effect Between Attachment Anxiety and Self-Concept Clarity on Facebook Anxiety.



Discussion

The current research examined the association of attachment patterns and social media fatigue, and the psychological mechanisms underlying this association. Findings of two studies support the hypothesis that high levels of attachment anxiety predict social media fatigue, and also offer empirical support for the argument that stressors related to social media use and variables related to self-concept play a role in this association.

More specifically, social comparison on Facebook mediated the association between attachment anxiety and Facebook fatigue in Study 1, while the mediation effect of social comparison tended to statistical significance in Study 2. These results suggest that social comparison plays a role in the association between attachment anxiety and social media fatigue.

Social comparison on social media is generally upward comparison, in which one compares oneself to others who appear to be more successful and whose lives appear to be more satisfying and happier (Lee, 2014). This is a result of people's tendency to engage in impression management and self-idealization when using social media (Dorethy et al., 2014; Jang et al., 2016). When anxiously attached individuals view their friends' idealized selves on social media, they might feel they are less successful, and that their lives are generally less satisfying compared to the lives of their friends. As a result, social media, which evokes constant social comparison, might lead to negative emotions such as jealousy, despair, and frustration (Appel et al., 2015), that accumulate over time and create a heavy emotional burden that depletes mental resources and leads to a sense of physical and mental exhaustion.

FoMO did not mediate the association between attachment anxiety and social media fatigue in Study 1, but did so in Study 2 with respect to participants low on self-concept clarity. This finding offers evidence for the argument that self-concept clarity "provides a more stable frame of reference for interacting with and assimilating the external environment" (Lewandowski et al., 2010, p. 13).

In the current case, the external environment is social media. Findings of Study 2 indicate that for individuals with low self-clarity, attachment anxiety is associated with FoMO, which in turn leads to higher levels of social media fatigue. Social media fatigue can be interpreted as impaired ability to contain the intense social interactions compelled by social media usage, and the emotional burden, especially in the interpersonal context, that social media usage potentially generates.

Another variable found in the current studies to mediate the association between attachment anxiety and social media fatigue, and specifically Facebook fatigue, is what Rom and Alfasi (2014) term *Facebook anxiety*. Individuals

with high attachment anxiety tend to express the behaviors they use in face-to-face interactions in their social media behaviors. Their doubts about their own lovability fuel a constant need for affirmation of their worth and desirability by others, and hence they are sensitive to indications of others' unavailability or disinterest in them. Consequently, their need for confirmation of being lovable and desired, is reflected in the excessive importance they attribute to others' reception of their social media activities (the posts they upload, the photos they share, etc.). Moreover, the fact that social media offer immediate and tangible feedback (in the form of likes, shares, etc.) on one's popularity and worth, highlights indications of indifference or rejection, to which people high in attachment anxiety are sensitive. Consequently, as the findings of the current studies suggest, for people high in attachment anxiety, the experience of social media use may become increasingly emotionally demanding, detrimental to their sense of their self-worth, and reduce their motivation to use social media over time.

This argument is supported by the findings of Study 2, which indicate that the mediating role of Facebook anxiety in the association between attachment anxiety and social media fatigue is moderated by self-concept clarity. Consequently, for individuals with less coherent and integrated self-concept, high attachment anxiety led to higher levels of Facebook anxiety, which led in turn to an experience of social media use fatigue.

As expected, no association was found between attachment avoidance and social media fatigue in Study 1. In Study 2, only a weak correlation was found between attachment avoidance and Facebook fatigue, which can be attributed to covariance with attachment anxiety. These findings support theoretical assumptions regarding the role of attachment avoidance as a defense mechanism, that develops as the result of unsuccessful efforts to achieve proximity to a significant caregiver (Cassidy & Kobak, 1988). As such, individuals with high levels of attachment avoidance generally seek to avoid emotional involvement in interpersonal relationships as much as possible, because this contradicts their self-reliance strategy (Mikulincer & Shaver, 2007). Accordingly, people with high attachment avoidance tend to reduce their emotional involvement in interpersonal relations, which therefore are characterized by low intimacy and low interdependence. That is, in order to avoid the sense of frustration and disappointment that they learned to associate with dependents on others (Mikulincer & Shaver, 2005; Rowe & Carnelley, 2005).

Indeed, the findings from the current studies suggest that attachment avoidance may serve as a defense mechanism, that enables highly avoidant individuals to be more capable of regulating the emotional impact of social media interactions. It appears that highly avoidant individuals are less affected than highly anxious individuals from the stressors associated with social media use and leads to Facebook Fatigue, such as social comparison, FoMO, and Facebook anxiety. Though not absolutely, as evidenced by the positive, albeit weak, correlations with this stressor on Study 2. These findings support previous studies on attachment (e.g., Carnelley et al., 2007; Rholes et al., 2007), which demonstrate that individuals with high attachment avoidance tend to filter out social information that might impair their sense of self.

When individuals high in attachment avoidance use social media, they employ the defenses they developed to block those adverse emotional effects of social media use that are primarily related to interpersonal relations. These defenses deflect the negative effects on their sense of self that stem from comparing themselves to the lives and achievements of others, as reflected on social media. Furthermore, individuals high in attachment avoidance do not have a need for constant confirmation of their own self-worth by others, as they are primarily self-reliant, which reduces the impact on them of social media's demand for immediate, direct responses. As a result, there is no adverse accumulation of stressors that might lead to exhaustion resulting from social media use, as is the case for individuals high in attachment anxiety.

Limitations and Future Directions

Despite the significance of the findings for understanding the phenomenon of social media fatigue, several limitations should be noted. First, the study was conducted on a relatively young sample (Study 1 $M_{age} = 30.2$, Study 2 = 29.1). Although this age group is the cohort that makes the most extensive use of social media, it would be interesting for future research to explore whether the association between attachment anxiety and social media fatigue is found among older individuals who may use social media for work-related or other purposes, and not necessarily to satisfy social and interpersonal needs.

Additionally, the current study examined social media fatigue in the specific context of Facebook use, as Facebook is the most popular online social network with the largest number of users (Alexa, 2018). Nonetheless, other online social networks, such as image-based social networks (e.g., Instagram and TikTok) or brief text-based social media

(e.g., Twitter) may have distinct attributes. Therefore, future research should explore whether social media fatigue is the outcome of the unique features of Facebook, a platform that enables various formats in which participants share their experiences, or whether this effect can be generalized to all types of social media.

Conclusion

The findings of the current study offer a deeper understanding of the mechanisms that underlie social media fatigue. From a theoretical perspective, these findings offer empirical evidence that people with different personality traits experience different levels of social media fatigue as a result of social media usage features and related stressors. From a practical perspective, the findings of the current study demonstrate the need to design less psychologically demanding user experiences on social media, to reduce stressors related to social media use.

Using social media in a state of mental and physical fatigue potentially exacerbates the adverse effects of social media. In a state of fatigue, people may, for example, be more vulnerable to manipulation and more susceptible to false information, because critical reasoning skills are compromised. Moreover, the ability to absorb and process an abundance of information in a state of fatigue may be limited and may lead to erroneous reasoning and mistaken conclusions, even in areas of significant importance to users' well-being.

Conflict of Interest

The Author declares that there is no conflict of interest.

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