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# Is there any 'Facebook Depression'? Exploring the moderating roles of neuroticism, Facebook social comparison and envy



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#### ABSTRACT

Mixed results have been found regarding the relationship between social media use and depressive symptoms. This study aims to explore the moderating roles of neuroticism, envy and Facebook social comparison in the relationship between Facebook usage and depressive symptoms. A sample of 282 participants were recruited from Amazon Mechanical Turk. They completed a battery of online questionnaires including measures of neuroticism, Facebook use, Facebook social comparison, envy and depressive symptoms. In the present study, the correlation between Facebook use and depressive symptoms was not statistically significant. Nevertheless, we found a significant interactive effect between time spent on Facebook and depressive symptoms was only found among those high in neuroticism. Facebook social comparison and envy did not significantly moderate the effect of time spent on Facebook on depressive symptoms. Potential explanations and implications of the results were discussed.

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#### 1. Introduction

There are 1.71 billion monthly active users on Facebook, the most popular social networking site (Facebook Information, 2016). Since Facebook is an important part of many people's social life, it is essential to understand the interrelationship between Facebook usage and psychological well-being. In 2011, the American Academy of Pediatrics (AAP) published a communication and media report warning that excessive exposure to Facebook might lead to depression especially among children and adolescents (O'Keeffe & Clarke-Pearson, 2011). However, this report has been proven to be controversial. It cited some media reports which misunderstood the original studies. For instance, it cited the media coverage of Davila et al. (2009) as evidence to support the negative causal impact of social media use on mental health but the original study did not involve any data about depressive symptoms and social media use.<sup>1</sup> It has also been criticized that conflicting evidence such as the positive association between Facebook use and self-esteem (Gonzales & Hancock, 2011) was omitted in the report.

The "Facebook depression" claim has been attracting much attention and has been widely reported in media. However, ongoing investigation on the association between Facebook usage and psychological wellbeing has yielded inconsistent results. For example, Wright et al. (2012) found that time spent on Facebook positively correlated with depressive symptoms. In contrast, Jelenchick, Eickhoff, and Moreno (2013) found in another one-week experience sampling study that Facebook usage did not associate with depressive symptoms. Valenzuela, Park, and Kee (2009) even suggested a positive association between Facebook usage and life satisfaction. Evidence regarding the "Facebook Depression" hypothesis has been mixed with studies that showed a negative association (Kross et al., 2013; Labrague, 2014; Sagioglou & Greitemeyer, 2014), no association (Datu, Valdez, & Datu, 2012; Jelenchick et al., 2013) or even a positive association (Gerson, Plagnol, & Corr, 2016; Valenzuela et al., 2009) between Facebook usage and psychological well-being. More research is warranted to examine the relationship between Facebook use and psychopathology. Using an age and ethnic diverse sample, the present research aimed to provide additional data on the association between Facebook usage and depression.

Furthermore, these contradictory findings in the literature might imply that the relationship between Facebook usage and depressive symptoms are more complicated than a one-to-one relationship and it is important to explore potential moderators. Emerging research suggests that personality traits may moderate the Facebook-Depression linkage (Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014; Ryan & Xenos, 2011). Personality traits may not only affect the

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<sup>&</sup>lt;sup>1</sup> In her website, Dr. Joanne Davila has also clarified that her paper (Davila et al., 2009) did not involve any data on Facebook and depressive symptoms. Her work was being inaccurately quoted by the media. The AAP report (O'Keeffe & Clarke-Pearson, 2011) used the inaccurate media reports as evidence to support the "Facebook Depression" claim.

frequency of using Facebook but also the way people use it and interpret information on Facebook (Hamburger & Ben-Artzi, 2000; Hughes, Rowe, Batey, & Lee, 2012; Moore & McElroy, 2012; Ryan & Xenos, 2011; Shchebetenko, 2016). For instance, Gerson et al. (2016) found that Goal-Drive Persistence moderated the impact of Facebook social comparison on well-being. Seidman (2013) also showed that the Big Five personality traits differentially associated with actual and ideal self-presentation on Facebook. To enhance understanding of the interrelationships among Facebook use, personality traits and depressive symptoms, the present study examined the moderating roles of neuroticism, Facebook social comparison and envy in the relationship between time spent on Facebook and depressive symptoms.

### 1.1. 'Facebook depression'? The potential moderating roles of neuroticism, Facebook social comparison and envy

Neuroticism is a personality trait characterized by negative affectivity, nervousness and sense of insecurity (Suls & Martin, 2005) and it has long been thought as related to life stress exposure (Fergusson & Horwood, 1987) and onset of depression (Farmer et al., 2000, 2002).

Neuroticism also affects people's online social behaviors. For instance, neuroticism is related to a greater tendency to present ideal and false self on Facebook (Michikyan, Subrahmanyam, & Dennis, 2014; Seidman, 2013). In addition, recent research in the realm of body images suggests that thin-ideal media images might only occur among people who have preexisting problems, which include neuroticism (Ferguson, 2013a). Idealized body images or life images are abundant on social networking sites since people have a tendency to portray their "good self" on Facebook (Nadkarni & Hofmann, 2012). Frequent exposure to these idealized images on Facebook might have negative impacts on neurotic people's well-being since they experience more negative emotion after unfavorable social comparison (Buunk, Van Der Zee, & Vanyperen, 2001). In this regard, Roberts and Good (2010) found that when exposed to idealized media images, neurotic females showed a greater decrease in body satisfaction than their less neurotic counterparts.

Furthermore, people with higher neuroticism show stronger preference for passive engagement features in Facebook (Ryan & Xenos, 2011), while passive Facebook usage (e.g. viewing others' profiles and updates) but not active Facebook usage (e.g. using Messenger to talk with others) were found to undermine affective well-being (Verduyn et al., 2015). Thus, in the present research we hypothesized that neuroticism moderate the association between Facebook usage and depressive symptoms.

Recent research also suggested that Facebook social comparison and envy are important mechanisms underlying the effect of Facebook use on depressive symptoms (Appel, Gerlach, & Crusius, 2016; Chou & Edge, 2012; Feinstein et al., 2013; Lin & Utz, 2015; Tandoc, Ferrucci, & Duffy, 2015; Muise, Christofides, & Desmarais, 2009). In particular, Tandoc et al. (2015) found that envy mediated the effect of surveillance use of Facebook on depressive symptoms. Feinstein et al. (2013) also found that Facebook social comparison associated with depressive symptoms.

Indeed, social comparison and envy are among the most frequently documented stressors associated with Facebook use (Appel et al., 2016; Fox & Moreland, 2015; Vogel, Rose, Okdie, Eckles, & Franz, 2015). The present research also tested whether the tendency to make unfavorable social comparison on Facebook and to envy moderated the association between time spent on Facebook and depressive symptoms.

Hypotheses: The association between time spent on Facebook and depressive symptoms is moderated by neuroticism/Facebook social comparison/envy. Time spent on Facebook positively is associated with depressive symptoms among people high in neuroticism/Facebook social comparison/envy but not among people low in neuroticism/Facebook social comparison/envy.

In addition to testing the above prespecified hypotheses, exploratory analyses were conducted to examine the interactive effects between other Big Five traits, age, gender, and time spent on Facebook in predicting depressive symptoms.

Big Five personality traits have been commonly found to link with motivation and the frequency of Facebook use (Amichai-Hamburger & Vinitzky, 2010; Correa, Hinsley, & De Zuniga, 2010; Moore & McElroy, 2012; Ross et al., 2009; Seidman, 2013). For instance, Seidman (2013) found that low conscientiousness associated with self-presentational motivations while agreeableness and extraversion associated with the tendency to present the actual self on Facebook. Although we did not have explicit prior hypothesis regarding how conscientiousness, extraversion, openness and agreeableness interacted with time spent on Facebook in predicting depressive symptoms, we wished to explore their potential moderating effects to enhance understanding of the complex interaction between personality and Facebook use.

Past research found that gender and age predicted patterns of Facebook use (e.g. women and elder people engaged in more online activities with families) (McAndrew & Jeong, 2012). In a recent study, Simoncic et al. (2014) also found a three-way interaction among gender, Facebook usage and neuroticism in predicting depressive symptoms. Thus, we also conducted exploratory analyses to examine the moderating effects of age and gender.

#### 2. Method

#### 2.1. Participants

Two hundred and eighty-two participants (195 males, 87 females; Age: 18 to 73;  $M_{age} = 33.19$ ,  $SD_{age} = 10.10$ ) participated in exchange for US\$ 0.4 in Amazon's Mechanical Turk. Recent studies have shown that research data collected from Mechanical Turk is reliable (Buhrmester, Kwang, & Gosling, 2011; Paolacci, Chandler, & Ipeirotis, 2010). In the present sample, 51.4% of participants are Caucasian, 20.2% are Hispanic, 16.0% are Asian, 11.3% are Native Americans or others and 1.1% are African American.

#### 2.2. Measures

Participants were invited to participate in a study about personality and Facebook use. They completed an online questionnaire assessing personality, Facebook use, Facebook social comparison, envy, depression and satisfaction with life.

#### 2.2.1. Big-Five personality traits

Participants' personalities were measured by the 44-item Big Five Personality Inventory (John & Srivastava, 1999). The Cronbach's alphas of the Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness subscales ranged from 0.71 to 0.77 in the present sample.

#### 2.2.2. Time spent on Facebook

To assess frequency of Facebook use, participants were asked to report the average time spent (in minutes) on Facebook per day. We also assessed the size of network circle (the number of Facebook friends).

#### 2.2.3. Facebook social comparison

Social comparison in the context of social networking sites was measured using the Facebook Social Comparison Scale (Lee, 2014). Sample items are "I think I often compare myself with others on Facebook when I am reading news feeds or checking out others' photos" and "I've felt pressure from the people I see on Facebook to have perfect appearance". The Cronbach's alpha was 0.68 in the present sample. Download English Version:

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