



The Big Five, self-esteem, and narcissism as predictors of the topics people write about in Facebook status updates



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ABSTRACT

Status updates are one of the most popular features of Facebook, but few studies have examined the traits and motives that influence the topics that people choose to update about. In this study, 555 Facebook users completed measures of the Big Five, self-esteem, narcissism, motives for using Facebook, and frequency of updating about a range of topics. Results revealed that extraverts more frequently updated about their social activities and everyday life, which was motivated by their use of Facebook to communicate and connect with others. People high in openness were more likely to update about intellectual topics, consistent with their use of Facebook for sharing information. Participants who were low in self-esteem were more likely to update about romantic partners, whereas those who were high in conscientiousness were more likely to update about their children. Narcissists' use of Facebook for attention-seeking and validation explained their greater likelihood of updating about their accomplishments and their diet and exercise routine. Furthermore, narcissists' tendency to update about their accomplishments explained the greater number of likes and comments that they reported receiving to their updates.

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1. Introduction

Why do some people write Facebook status updates that describe amusing personal anecdotes, whereas others write updates that declare love to a significant other, express political opinions, or recount the details of last night's dinner? Since the inception of Facebook in 2004, status updates have been one of its most preferred features (Ryan & Xenos, 2011). Status updates allow users to share their thoughts, feelings, and activities with friends, who have the opportunity to "like" and comment in return. In spite of the central role of status updates in Facebook use, few studies have examined the predictors of the topics that people choose to write about in their updates. The current study took a step in this direction by examining the personality traits associated with the frequency of updating about five broad topics identified through a factor analytic approach: social activities and everyday life, intellectual pursuits, accomplishments, diet/exercise, and significant relationships. We also examined whether these associations were mediated by some of the motives for using Facebook identified in the literature (e.g., Bazarova & Choi, 2014; Seidman, 2013): need for validation (i.e., seeking attention and acceptance), self-expression (i.e., disclosing personal opinions, stories, and

complaints), communication (i.e., corresponding and connecting), and sharing impersonal information (e.g., current events).

A secondary purpose of this study was to examine whether people who update more frequently about certain topics receive greater numbers of "likes" and comments to their updates. Those who do may experience the benefits of social inclusion, whereas those who do not might experience a lower sense of belonging, self-esteem, and meaningful existence (Tobin, Vanman, Verreynne, & Saeri, 2015). Our results may therefore shed light on the status update topics that put Facebook users at risk of online ostracism. Below we review literature on personality traits and motives that are often linked with Facebook use.

1.1. The Big Five

According to the "Big Five" model of personality, individuals vary in terms of extraversion, neuroticism, openness to experience, agreeableness, and conscientiousness (Costa & McCrae, 1992). People who are extraverted are gregarious, talkative, and cheerful. They tend to use Facebook as a tool to communicate and socialize (Seidman, 2013), as reflected in their more frequent use of Facebook (Gosling, Augustine, Vazire, Holtzmann, & Gaddis, 2011), greater number of Facebook friends (Amichai-Hamburger & Vinitzky, 2010), and preference for features of Facebook that allow for active social contribution, such as status updates (Ryan & Xenos, 2011). We therefore predicted that extraversion would

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be positively associated with updating about social activities, and that this association would be mediated by extraverts' use of Facebook for communication (*Hypothesis 1*).

Neuroticism is characterized by anxiety and sensitivity to threat. Neurotic individuals may use Facebook to seek the attention and social support that may be missing from their lives offline (Ross et al., 2009). Accordingly, neuroticism is positively associated with frequency of social media use (Correa, Hinsley, & de Zuniga, 2010), the use of Facebook for social purposes (Hughes, Rowe, Batey, & Lee, 2012), and engaging in emotional disclosure on Facebook, such as venting about personal dramas (Seidman, 2013). Their willingness to disclose about personal topics led us to predict that neuroticism would be positively associated with updating about close relationships (romantic partners and/or children), and that the selection of these topics would be motivated by their use of Facebook for validation and self-expression (*Hypothesis 2*).

People who are high in openness tend to be creative, intellectual, and curious. Openness is positively associated with frequency of social media use (Correa et al., 2010), and with using Facebook for finding and disseminating information, but not for socializing (Hughes et al., 2012). We therefore predicted that openness would be positively associated with updating about intellectual topics, and that this association would be mediated by the use of Facebook for sharing information (*Hypothesis 3*).

People who are high in agreeableness tend to be cooperative, helpful, and interpersonally successful. Agreeableness is positively associated with posting on Facebook to communicate and connect with others and negatively associated with posting to seek attention (Seidman, 2013) or to badmouth others (Stoughton, Thompson, & Meade, 2013). The interpersonal focus of agreeable people and their use of Facebook for communication may inspire more frequent updates about their social activities and significant relationships (*Hypothesis 4*).

Conscientiousness describes people who are organized, responsible, and hard-working. They tend to use Facebook less frequently than people who are lower in conscientiousness (Gosling et al., 2011), but when they do use it, conscientious individuals are diligent and discreet: they have more Facebook friends (Amichai-Hamburger & Vinitzky, 2010), they avoid badmouthing people (Stoughton et al., 2013), and they are less likely to post on Facebook to seek attention or acceptance (Seidman, 2013). Thus, we predicted that conscientiousness would be positively associated with updating about inoffensive, "safe" topics (i.e., social activities and everyday life), which would be mediated by the lower tendency of using Facebook for validation (*Hypothesis 5*).

1.2. Self-esteem

People with low self-esteem are more likely to see the advantages of self-disclosing on Facebook rather than in person, but because their status updates tend to express more negative and less positive affect, they tend to be perceived as less likeable (Forest & Wood, 2012). Furthermore, anxiously-attached individuals – who tend to have low self-esteem (Campbell & Marshall, 2011) – post more often about their romantic relationship to boost their self-worth and to refute others' impressions that their relationship is poor (Emery, Muise, Dix, & Le, 2014). We therefore hypothesized that self-esteem would be negatively associated with updating about a romantic partner, and that this association would be mediated by the use of Facebook for validation (*Hypothesis 6*).

1.3. Narcissism

Narcissistic individuals tend to be self-aggrandizing, vain, and exhibitionistic (Raskin & Terry, 1988). They seek attention and

admiration by boasting about their accomplishments (Buss & Chiodo, 1991) and take particular care of their physical appearance (Vazire, Naumann, Rentfrow, & Gosling, 2008). This suggests that their status updates will more frequently reference their achievements and their diet and exercise routine (*Hypothesis 7*). Moreover, the choice of these topics may be motivated by the use of status updates to gain validation for inflated self-views, consistent with the positive association of narcissism with the frequency of updating one's status (Carpenter, 2012), posting more self-promoting content (Mehdizadeh, 2010), and seeking to attract admiring friends to one's Facebook profile (Davenport, Bergman, Bergman, & Ferrington, 2014).

1.4. Response to status updates

We examined whether people receive differential numbers of likes and comments to their updates depending on their personality traits and frequency of writing about various topics. People with lower self-esteem tend to receive fewer likes and comments because their status updates express more negative affect (Forest & Wood, 2012). We tested the possibility that they may also receive fewer likes and comments because they are more likely to update about their romantic partner (*Hypothesis 8*); indeed, people who write updates that are high in relationship disclosure are perceived as less likeable (Emery, Muise, Alpert, & Le, 2015). The associations of the Big Five traits, narcissism, and the other status update topics with the number of likes and comments received were examined on an exploratory basis to shed light on who may be at risk of receiving less social reward on Facebook, and whether it is because they express unpopular topics in their updates.

2. Method

2.1. Participants

Data was collected from 555 Facebook users currently residing in the United States (59% female; $M_{age} = 30.90$, $SD_{age} = 9.19$). Sixty-five percent of participants were currently involved in a romantic relationship, and 34% had at least one child. Fifty-seven percent checked Facebook on a daily basis, and spent an average of 107.95 min per day actively using it ($SD = 121.41$). Ninety percent of participants were recruited through Amazon's Mechanical Turk and paid \$1.00 in compensation; the rest were recruited through web forums for online psychology studies, and received no compensation.

2.2. Materials and procedure

Participants completed an online survey consisting of demographic questions and the following measures. Cronbach's alpha coefficients are reported in Table 1.

2.2.1. Big Five personality traits

The 35-item Berkeley Personality Profile (Harary & Donahue, 1994) measures extroversion, neuroticism, openness, agreeableness, and conscientiousness with 7 items each (1 = *Strongly disagree*, 5 = *Strongly agree*).

2.2.2. Self-esteem

The 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965) measures self-esteem with items such as "I feel that I have a number of good qualities" (1 = *Strongly disagree*, 5 = *Strongly agree*).

Table 1
Means, standard deviations, Cronbach's alpha coefficients, and Pearson's correlations.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Extraversion																			
2. Neuroticism	-.42																		
3. Openness	.22	-.07																	
4. Conscientious	.23	-.54	.13																
5. Agreeable	.29	-.36	.15	.37															
6. Self-esteem	.40	-.64	.16	.58	.37														
7. Narcissism	.31	-.04	.14	-.04	-.21	.05													
8. Social activity	.24	-.04	.10 [†]	.09 [†]	.13	.06	.03												
9. Intellectual	.15	-.03	.31	.01	.05	.04	.08 [†]	.54											
10. Achieve	.20	.01	.18	.04	.14	.07	.14	.62	.53										
11. Diet/exercise	.18	-.04	.03	-.02	.04	-.06	.19	.49	.44	.40									
12. Romantic	.11 [*]	-.05	-.03	-.01	-.01	-.05	.05	.46	.21	.36	.34								
13. Children	.04	.05	.04	.06	.06	-.03	-.03	.37	.10	.33	.14 [†]	.27							
14. Validation	.14	.14	-.01	-.09 [†]	.01	-.12	.21	.43	.29	.42	.41	.30	.19 [*]						
15. Expression	.16	.06	.15	-.04	.02	-.06	.14	.54	.49	.50	.41	.27	.16 [*]	.72					
16. Communicate	.24	-.02	.17	.13	.16	.14	.02	.55	.41	.49	.26	.31	.38	.52	.56				
17. Information	.23	-.02	.24	.12	.13	.13	.06	.52	.55	.49	.31	.27	.16 [*]	.55	.64	.75			
18. Like/comment	.18	-.13	-.01	.14	.19	.10 [†]	.08 [†]	.12	.05	.19	.07	.20	.26	.07	.03	.14	.75	.08 [†]	
Mean	20.94	19.42	24.79	24.54	24.47	36.85	3.99	11.75	8.18	7.07	3.20	2.46	3.32	20.48	15.79	13.71	33.37	10.53	
SD	5.89	5.91	4.83	4.96	4.91	8.79	2.88	3.88	3.17	2.67	1.59	1.17	1.16	9.27	6.88	4.47	11.17	11.81	
α	.85	.85	.72	.77	.76	.92	.73	.76	.75	.80	.76	–	–	.85	.82	.75	.88	–	

Note. Bolded values were significant at $p < .01$.

[†] $p < .10$.

^{*} $p < .05$.

2.2.3. Narcissism

The 13-item version of the Narcissistic Personality Inventory (NPI-13; Gentile et al., 2013) is derived from the original NPI-40 (Raskin & Terry, 1988) and measures three components of trait narcissism: need for leadership/authority, grandiose exhibitionism, and entitlement/exploitativeness. Items are rated on a forced-choice basis, such that one choice represents greater narcissism and the other less. Higher scores indicate greater narcissism.

2.2.4. Facebook use

Participants reported their number of Facebook friends, how many days of the week they check Facebook (0–7 days), how much time they spend actively using it on days they check it, and how frequently they update their Facebook status (1 = Never, 9 = 7–10 times a day).

2.2.5. Topics of status updates

Participants indicated how frequently they write about 20 topics in their Facebook status updates (i.e., verbal descriptions of their status excluding photos, videos, or emoticons). These topics were generated by the authors through laboratory group discussions. Responses were rated on a 5-point Likert scale ranging from 1 (Never) to 5 (Very often). To extract common themes across topics, we conducted principal axis factoring with promax rotation. This yielded four factors with eigenvalues greater than 1 that together accounted for 57% of the total variance. Five topics loaded on the first factor, which reflected social activities and everyday life (*my social activities, something funny that happened to me, my everyday activities, my pets, sporting events*). Four topics loaded on the second factor, which reflected intellectual themes (*my views on politics, current events, research/science, my own creative output – e.g., art, writing, research*). Three topics loaded on the third factor, which reflected achievement orientation (*achieving my goals, my accomplishments, work or school*). Two topics loaded on the fourth factor, which reflected diet/exercise (*my exercise routine, my diet*). Several topics did not meet Tabachnik and Fidell's (2007) criteria that items must have a minimal loading of .32 on a single factor: three items (*my children, my religious beliefs, and quotations or song lyrics*) were below this threshold, and two items cross-loaded (*my*

travels, my views on TV show, movies, or music). A final topic (*my relationship with my current romantic partner*) was not included in the factor analysis because it was only completed by participants currently involved in a relationship. Of the topics that did not load onto one of the four factors, we only further analyzed the frequency of updating about children and romantic partners as single variables because of our hypotheses regarding the associations of personality traits with updating about significant relationships. We also asked participants who they shared each status update topic with (*no one, the public, friends only, close friends only*), but because there was little variation across topics in these privacy settings, we did not examine this variable further.

2.2.6. Motives for using Facebook

We measured four motives for using Facebook by adapting items from a variety of sources (e.g., Hughes et al., 2012; Seidman, 2013) so that each began with "I use Facebook to...". Use of Facebook for validation was measured with seven items that tapped attention-seeking (e.g., "I use Facebook to show off") and need to feel accepted and included (e.g., "I use Facebook to feel loved"). Five items measured use of Facebook for self-expression (e.g., "I use Facebook to express my identity/opinions"). Three items measured use of Facebook to communicate (e.g., "I use Facebook to communicate with people I often see"), and eight items assessed use of Facebook to find and disseminate information (e.g., "I use Facebook to stay informed"). Participants indicated their agreement with these statements using a 1–7 Likert scale anchored with *Strongly disagree* (1) and *Strongly agree* (7).

2.2.7. Likes and comments

Participants indicated how many likes and comments, on average, they tend to receive when they post a typical Facebook status update.

3. Results and discussion

Table 1 reports the descriptive statistics and Pearson's correlations. Table 2 reports the results of regression analyses that examined the predictors of updating about each of the six topics

Table 2
Standardized regression coefficients for the predictors of status update topics, motives for using Facebook, and number of likes/comments.

Predictor variables	Topics (criterion variables)						Motives for using Facebook (mediating variables)				Number likes/comments (criterion variable)
	Social activities/ everyday life	Intellect	Achieve	Diet/ exercise	Romantic partner (N = 372)	Children (N = 188)	Validation	Self-express	Communicate	Information	
Frequency update	.60	.46	.42	.27	.30	.30	.31	.48	.38	.42	.09 [†]
Number of friends	.03	.03	.12 ^{**}	.02	.07	-.03	.11 [*]	.08 [†]	.15 ^{**}	.17	.29
Sex	.06	-.03	.14 ^{**}	-.04	-.04	-.19 [*]	-.01	.06	.20	.08 [†]	.17 ^{**}
Age	-.05	.04	-.19	.02	-.12 [†]	-.19 [*]	.01	.04	-.01	-.01	-.03
Extraversion	.14 ^{**}	.04	.05	.11 [†]	.11	-.02	.05	.04	.14 ^{**}	.11 [*]	.07
Neuroticism	.02	-.04	.06	-.03	-.09	.02	.18 ^{**}	-.01	.05	.10	.01
Openness	-.01	.29	.12 ^{**}	-.02	-.04	-.01	-.06	.06	.06	.12 [*]	-.05
Conscientiousness	.08 [†]	-.05	.02	-.01	.06	.23 [*]	.02	-.02	.11 [*]	.11 [*]	.07
Agreeableness	.03	-.03	.07	.02	-.04	.10	.02	-.01	-.01	-.02	.06
Self-esteem	-.05	-.04	.03	-.11 [†]	-.17 [*]	-.19	-.05	-.13 [*]	.01	-.01	.07
Narcissism	-.01	.03	.14 ^{**}	.17 ^{**}	-.06	-.06	.22	.13 ^{**}	-.02	.02	.15 ^{**}
R ²	.43	.35	.35	.14	.14	.21	.21	.31	.31	.32	.21

Note. Bolded values were significant at $p < .001$.

Sex: female = 1, male = -1.

[†] $p < .10$.

^{*} $p < .05$.

^{**} $p < .01$.

(criterion variables), the four motives for using Facebook (mediating variables), and the number of likes and comments received to a typical update (criterion variable). Predictors included several control variables (frequency of updating one's status, number of Facebook friends, sex, age) and the traits of interest (Big Five traits, self-esteem, narcissism). We conducted bootstrap tests of multiple mediation using Preacher and Hayes's (2008) SPSS script to assess whether the motives for using Facebook mediated the associations of the personality traits with updating about certain topics. In these tests, the control variables and other personality traits were entered as covariates, and the four motives for using Facebook were entered as multiple mediators.

3.1. Predictors of status update topics and motives for using Facebook

Table 2 reveals support for Hypothesis 1: extraversion was positively associated with updating more frequently about social activities and everyday life, and with using Facebook to communicate. A further regression analysis showed that the use of Facebook to communicate predicted the frequency of updating about social activities and everyday life over and above the control variables and other personality traits ($b = .25, p < .0001$). Examination of the 95% bias-corrected confidence intervals (CI) from 1000 bootstrap samples revealed that the positive association of extraversion with updating about social activities and everyday life was mediated by the use of Facebook to communicate ($b = .03, p = .05$ (CI: .003–.05)). These results further confirm that extraverts use Facebook, and specifically status updates, as a tool for social engagement (Ryan & Xenos, 2011; Seidman, 2013).

Hypothesis 2 was only partially supported: neuroticism was not associated with updating about any of the six topics or with using Facebook for self-expression, but it was associated with using Facebook for validation. Indeed, neurotic individuals may use Facebook to seek the attention and support that they lack offline (Ross et al., 2009).

Consistent with Hypothesis 3, openness was positively associated with updating about intellectual topics, and with using Facebook for information. A further regression analysis showed that the use of Facebook for information and for self-expression predicted the frequency of updating about intellectual topics over and above the control variables and traits ($b = .34, p < .0001$ and $b = .22, p < .001$, respectively). The bootstrap test revealed that the positive association of openness with updating about

intellectual topics was indeed mediated by the use of Facebook for information ($b = .03, p < .01$ (CI: .007–.05)). People high in openness, then, may write updates about current events, research, or their political views for the purpose of sharing impersonal information rather than for socializing, consistent with the findings of Hughes et al. (2012).

There was no support for Hypothesis 4 – agreeableness was not associated with updating more frequently about social activities, significant relationships, or with using Facebook to communicate. Contrary to Hypothesis 5, conscientiousness was not associated with updating about “safe” topics such as social activities and everyday life; rather, it was associated with writing more frequent updates about one's children. Furthermore, conscientiousness was not negatively associated with using Facebook for validation, but it was positively associated with using Facebook to share information and to communicate. The latter use predicted the frequency of updating about one's children over and above the control variables and personality traits ($b = .38, p = .01$), but it did not significantly mediate the association of conscientiousness with updating about children. Thus, conscientious individuals may update about their children for purposes other than communicating with their friends. Perhaps such updates reflect an indirect form of competitive parenting.

Consistent with Hypothesis 6, people who were lower in self-esteem more frequently updated about their current romantic partner, but they were more likely to use Facebook for self-expression rather than for validation. That the frequency of updating about one's romantic partner was predicted not by the use of Facebook for self-expression but rather by communication ($b = .24, p = .01$) suggests that people with low self-esteem may have other motives for posting updates about their romantic partner. Considering that people with low self-esteem tend to be more chronically fearful of losing their romantic partner (Murray, Gomillan, Holmes, & Harris, 2015), and that people are more likely to post relationship-relevant information on Facebook on days when they feel insecure (Emery et al., 2014), it is reasonable to surmise that people with low self-esteem update about their partner as a way of laying claim to their relationship when it feels threatened.

In line with Hypothesis 7, narcissism was positively associated with updating about achievements and with using Facebook for validation. Moreover, the use of Facebook for validation and for communication predicted the frequency of updating about

achievements over and above the control variables and traits ($b = .14, p = .02$ and $b = .13, p = .04$, respectively). The association of narcissism with updating about achievements was significantly mediated by the use of Facebook for validation ($b = .04, p = .05$ (CI: .006–.07)), consistent with narcissists' tendency to boast in order to gain attention (Buss & Chiodo, 1991). Also consistent with Hypothesis 7, narcissism was positively associated with updating about diet/exercise, but the use of Facebook for self-expression rather than validation was positively associated with updating about diet/exercise over and above the control variables and traits ($b = .24, p < .01$). Self-expression mediated the association of narcissism with updating about diet/exercise ($b = .03, p = .03$ (CI: .003–.04)), suggesting that narcissists may broadcast their diet and exercise routine to express the personal importance they place on physical appearance (Vazire et al., 2008).

3.2. Predictors of likes and comments received

As seen in Table 2, there was no support for Hypothesis 8: narcissism rather than self-esteem was associated with receiving a greater number of likes and comments to one's updates. We then assessed whether the four topics common to the entire sample – social activities and everyday life, intellectual pursuits, achievements, and diet/exercise – predicted the number of likes and comments typically received to an update over and above the control variables and traits. Updating about social activities and everyday life was positively associated with the number of likes and comments received ($b = .13, p = .05$), as was achievements ($b = .16, p = .01$), whereas updating about intellectual topics was negatively associated ($b = -.13, p = .04$). Two additional regression models added the frequency of updating about one's romantic partner or one's children as predictors for participants who had a relationship partner or children. Only the frequency of updating about one's children significantly predicted likes/comments ($b = .23, p = .02$).

Bootstrap mediation revealed that the tendency for narcissists to report receiving more likes and comments was mediated by their higher frequency of updating about their achievements ($b = .06, p < .01$ (CI: .01–.18)). Thus, narcissists' publicizing of their achievements appeared to be positively reinforced by the attention and validation they crave.

3.3. Limitations and future directions

The main limitation of this study is that it was based on participants' self-reported Facebook behavior. Narcissists, in particular, may not accurately report the number of likes and comments they receive to updates. More objective and precise estimates can be obtained in future research by coding participants' actual status updates for topic themes and recording the number of likes and comments received to each topic. Another avenue for future research is to obtain direct evaluations of particular status update topics and of the likeability of people who update about these topics. That updating about social activities, achievements, and children was positively associated with Facebook attention, and updating about intellectual topics negatively associated, suggests that the former topics might be evaluated more positively than the latter. Yet these associations are at best a proxy for the likeability of these topics and of the individuals who write them. Considering that objective raters can accurately discern whether a person is narcissistic by looking at their Facebook page (Buffardi & Campbell, 2008), people may be correctly perceived as narcissistic if they more frequently update about their achievements, diet, and exercise. Furthermore, people may like and comment on a friend's achievement-related updates to show support, but may secretly dislike such displays of hubris. The closeness of the friendship

is therefore likely to influence responses to updates: close friends may “like” a friend's update, even if they do not actually like it, whereas acquaintances might not only ignore such updates, but eventually unfriend the perpetrator of unlikeable status updates.

4. Conclusions

Taken together, these results help to explain why some Facebook friends write status updates about the party they went to on the weekend whereas others write about a book they just read or about their job promotion. It is important to understand why people write about certain topics on Facebook insofar as the response they receive may be socially rewarding or exclusionary. Greater awareness of how one's status updates might be perceived by friends could help people to avoid topics that annoy more than they entertain.

References

- Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior*, 26, 1289–1295.
- Bazarova, N. N., & Choi, Y. H. (2014). Self-disclosure in social media: Extending the functional approach to disclosure motivations and characteristics on social network sites. *Journal of Communication*, 64, 635–657.
- Buffardi, L. E., & Campbell, W. K. (2008). Narcissism and social networking websites. *Personality and Social Psychology Bulletin*, 34, 1303–1314.
- Buss, D. M., & Chiodo, L. M. (1991). Narcissistic acts in everyday life. *Journal of Personality*, 59, 179–215.
- Campbell, L. C., & Marshall, T. C. (2011). Anxious attachment and relationship processes: An interactionist perspective. *Journal of Personality*, 79, 917–947.
- Carpenter, C. J. (2012). Narcissism on Facebook: Self-promotional and antisocial behaviour. *Personality and Individual Differences*, 52, 482–486.
- Correa, T., Hinsley, A. W., & de Zuniga, H. G. (2010). Who interacts on the Web? The intersection of users' personality and social media use. *Computers in Human Behavior*, 26, 247–253.
- Costa, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13, 653–665.
- Davenport, S. W., Bergman, S. M., Bergman, J. Z., & Fearington, M. E. (2014). Twitter versus Facebook: Exploring the role of narcissism in the motives and usage of different social media platforms. *Computers in Human Behavior*, 32, 212–220.
- Emery, L. F., Muise, A., Alpert, E., & Le, B. (2015). Do we look happy? Perceptions of romantic relationship quality on Facebook. *Personal Relationships*, 22, 1–7.
- Emery, L. F., Muise, A., Dix, E. L., & Le, B. (2014). Can you tell that I'm in a relationship? Attachment and relationship visibility on Facebook. *Personality and Social Psychology Bulletin*, 40, 1466–1479.
- Forest, A. L., & Wood, J. V. (2012). When social networking is not working: Individuals with low self-esteem recognize but do not reap the benefits of self-disclosure on Facebook. *Psychological Science*, 23, 295–305.
- Gentile, B., Miller, J. D., Hoffman, B. J., Reidy, D. E., Zeichner, A., & Campbell, W. K. (2013). A test of two brief measures of grandiose narcissism: The Narcissistic Personality Inventory-13 and the Narcissistic Personality Inventory-16. *Psychological Assessment*, 25, 1120–1136.
- Gosling, S. D., Augustine, A. A., Vazire, S., Holtzmann, N., & Gaddis, S. (2011). Manifestations of personality in online social networks: Self-reported Facebook-related behaviors and observable profile information. *Cyberpsychology, Behavior, and Social Networking*, 14, 483–488.
- Harary, K., & Donahue, E. (1994). *Who do you think you are?* San Francisco: Harper.
- Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior*, 28, 561–569.
- Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior, and Social Networking*, 13, 357–364.
- Murray, S. L., Gomillion, S., Holmes, J. G., & Harris, B. (2015). Inhibiting self-protection in romantic relationships: Automatic partner attitudes as a resource for low self-esteem people. *Social Psychological and Personality Science*, 6, 173–182.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891.
- Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890–902.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Ross, C., Orr, E. S., Sisis, M., Arseneault, J. M., Simmering, M. G., & Orr, R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior*, 25, 578–586.

- Ryan, T., & Xenos, S. (2011). Who uses Facebook? An investigation into the relationship between the Big Five, shyness, narcissism, loneliness, and Facebook usage. *Computers in Human Behavior*, *27*, 1658–1664.
- Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Differences*, *54*, 402–407.
- Stoughton, J. W., Thompson, L. F., & Meade, A. W. (2013). Big Five personality traits reflected in job applicants' social media postings. *Cyberpsychology, Behavior, and Social Networking*, *16*, 800–805.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn and Bacon.
- Tobin, S. J., Vanman, E. J., Verreynne, M., & Saeri, A. K. (2015). Threats to belonging on Facebook: Lurking and ostracism. *Social Influence*, *10*, 31–42.
- Vazire, S., Naumann, L. P., Rentfrow, P. J., & Gosling, S. D. (2008). Portrait of a narcissist: Manifestations of narcissism in physical appearance. *Journal of Research in Personality*, *42*, 1439–1447.