

The Association between Social Media Use and Personality Dysfunction

Keefe Maccarone, B.S., and Anthony Michael Tarescavage, PhD

Abstract

The association between social media site use and personality dysfunction has not yet been thoroughly explored. Existing studies focus on specific mental illnesses rather than dysfunctional personality traits. Moreover, the effects of social media use on individual functioning is debated within the literature. While some literature asserts that social media site use is harmful (e.g., Oberst et al., 2017), other studies have concluded that moderated social media site use may improve functioning (e.g., Barker, 2016). The purpose of the current study was to investigate the association between social media site use and various forms of personality dysfunction. Participants were administered the MMPI-2-RF and CAT-PD-SF alongside a brief questionnaire on social media site use habits. We compared subgroups of individuals who were high and low on social media use across the MMPI-2-RF and CAT-PD-SF scales. Results indicated significant and meaningful differences between the groups, such that those with high social media use tended to score higher in externalizing characteristics. The implications of these findings and limitations of this study are discussed.

Introduction

As social media increases in popularity and has greater influence on society and everyday life, questions are raised as to how this communication may contribute to the development of mental illness. The highly unregulated and pervasive nature of social media calls into question how use of social media sites (SMS) can exacerbate or influence mental illness symptomology. Although some of the literature indicates that heavy SMS use increases general depression and anxiety symptomology (e.g., Oberst et al., 2017), some literature indicates that SMS use can be either beneficial or detrimental depending on the type of the SMS (Barker, 2009). Few studies have been conducted on the relationship between temperament factors underlying mental illness and SMS use habits. Those studies that do investigate mental illness symptomology primarily focus on anxiety, depression, and narcissistic symptomology, and they fail to investigate possible connections between SMS use and more varied dysfunctional personality traits. Current studies are also limited by a lack of precise, widely adopted definitions of heavy, substantial, or regular SMS use.

Most of the current literature supports the assertion that high SMS use is correlated with mental health problems. For example, recent studies indicate that heavy SMS use is related to symptoms of depression and anxiety. Oberst, Wegmann, Stodt, Brand, and Chamarro (2017) found that high SMS use was correlated with feelings of depression in women and feelings of anxiety in men. High SMS use has also been shown to be associated with high levels of extraversion and

addictive tendencies (Wilson, Farnasier, & White, 2010). A study conducted by Rosen, Whaling, Rab, Carrier, and Cheever (2013) revealed a relationship between having a high number of connections (friends, followers, etc.) on SMSs and symptomology of mania, narcissism, and histrionic personality disorder. Another study indicated an association between high SMS use and narcissism, while also affirming that addictive use of smartphones, including use of SMSs, is associated with higher levels of neuroticism (Pearson & Hussain, 2015). The authors of this study also concluded that smart phones may promote narcissistic behavior.

Despite research indicating a relationship between SMS use and psychological problems, not all literature supports this association. Some studies have concluded that regular SMS use improves social and psychological functioning. One study determined that use of SMSs to communicate with others was linked to higher collective self-esteem (Barker, 2016). Another study conducted by Brusilovskiy, Townley, Snethen, and Salzer (2016) with participants with mental illness found that those who used SMSs for at least 30 minutes per day demonstrated greater rates of social involvement. The analyses also indicated a lack of significant associations between SMS use and psychiatric problems as well as loneliness. Although Rosen and colleagues (2013) found that the number of connections on SMSs was associated with symptoms of bipolarism, mania, histrionic personality disorder, and narcissism, SMS use was also correlated with lower symptomology of schizoid personality disorder and dysthymia.

Consistent with the mixed findings just reviewed, more recent analyses indicate a complex relationship between social media use and mental health. A systematic review conducted by Baker and Algorta (2016) concluded that the relationship between depressive symptoms and SMS use varies depending on a variety of factors, including social, behavioral, and other individual difference variables. Another systematic review concluded that the impact of SMS use on mental health is moderated by the degree to which social activity is facilitated in the SMS (Seabrook, Kern, & Rickard, 2016).

Current Study

The aim of the current study is to examine how SMS use is associated with dysfunctional personality characteristics. The recent body of research is conflicted as to whether substantial SMS use has positive or negative effects on personal well-being and mental health problems. In part, this may be because past research has investigated mental health problems rather than the temperamental personality characteristics that underlie mental illness. The current study addresses this gap by comparing the responses of high SMS users and low SMS users on two well validated indicators of personality dysfunction. It is hypothesized that individuals who are high in SMS use will exhibit higher levels than those who are low in SMS use on low positive emotionality and negative affectivity (Oberst et al., 2017), externalizing personality characteristics (Wilson, Farnasier, & White, 2010), narcissistic characteristics (Rosen et al., 2013; Pearson & Hussain, 2015), behavioral activation, and histrionic personality characteristics (Rosen et al., 2013).

Method

Participants

One hundred and eighty-four college students (81 males, 103 females) from a private, mid-sized Midwestern university participated in the study. Each participant received credit towards an introductory psychology course or extra credit for an upper-level psychology course for taking part in this study. All participants were administered a social media use questionnaire, the Minnesota

Multiphasic Personality Inventory-2-Restructured Form (Ben-Porath & Tellegen, 2008/2011), and the Computerized Adaptive Test of Personality Disorder-Static Form (CAT-PD-SF; Simms et al., 2011). We excluded 30 participants who either provided more than 10% non-scoreable responses to the CAT-PD-SF or who produced invalid MMPI-2-RF protocols according to standard interpretive guidelines (Cannot Say [CNS] ≥ 18 , Variable Response Inconsistency [VRIN-r] ≥ 80 , True Response Inconsistency [TRIN-r] ≥ 80 , Infrequent Responses [F-r] ≥ 120 , or Infrequent Psychopathology Responses [Fp-r] ≥ 100 ; Ben-Porath & Tellegen, 2011). The final sample was comprised of 154 participants (70 males, 84 females). Ages ranged from 18 to 27 years of age with a mean age of 19.1 ($SD = 1.3$). Participants consisted of 135 Caucasian, eight African-American, four Hispanic/Latino, and two Asian students, as well as five participants who identified their race as "Other." All but one participant indicated their marital status as "Single." Participant length of education ranged from 12 to 18 years with a mean of 12.9 years ($SD = 1.2$).

Measures

MMPI-2-RF. Participant personality dysfunction was measured with a computerized administration of the MMPI-2-RF (Ben-Porath & Tellegen, 2008/2011). The MMPI-2-RF is a broadband measure of personality dysfunction with 338 True/False items. The reliability and validity of the MMPI-2-RF has been investigated thoroughly (Ben-Porath, 2012). These MMPI-2-RF scales include the three higher-order scales, nine restructured clinical scales, five somatic and cognitive scales, nine internalizing scales, four externalizing scales, five interpersonal scales, and the Personality Psychopathology Five scales.

CAT-PD-SF. Personality dysfunction was also assessed via use of the CAT-PD-SF (Simms et al., 2011). The CAT-PD-SF has also been established as a reliable and valid measure of personality dysfunction (Thimm, 2017). The CAT-PD-SF has 218 items with five-point Likert response options. The test measures 33 dysfunctional personality characteristics.

Social media use measure. Each participant was also administered a brief questionnaire assessing SMS use habits. Participants were instructed to indicate both the total number of individual instances and total number of hours on a regular basis that they used a SMS in any form on each day of the week. Text boxes were provided for each day of the week for participants to indicate the frequency of SMS use per day. Another set of text boxes was provided for participants to indicate the total number of hours the participants used SMSs each day of the week. This information was averaged to create two variables: SMS frequency and SMS duration.

Procedure

Participants were brought in groups of no more than six to a study room. Each participant sat alone and completed the questionnaires on a computer while being supervised by a research assistant. Participants were provided with a debriefing statement upon completion of the study. Participants were not provided with the results of the assessments they completed. Each of the study materials was administered via use of Qualtrics, an online survey administration and data collection tool. This data collection was approved by the John Carroll University Institutional Review Board.

Analysis Plan

We sought to derive low and high SMS use groups by which to compare MMPI-2-RF and CAT-PD-SF scores. To this end, we first converted the SMS frequency and duration variables to Z-scores. Next, we created a composite SMS use variable by summing the standardized scores from the two variables. Finally, we derived the low and high SMS use group from the first and fourth quartile of the composite SMS variable, respectively. (The average frequency of use and number of hours of use per day of those in the low and high groups are in Table 1.) There were no

statistically significant differences between these two groups on the demographic variables (p 's > .05). Furthermore, there were no statistically significant differences in demographic characteristics across individuals in these two subgroups and the overall valid sample (p 's > .05).

We compared scores across the two groups using independent samples t-tests. To improve statistical power, we utilized one-sided t-tests, with the expectation that the high SMS use group would score higher on indicators of personality psychopathology (consistent with our a priori hypotheses). Effect sizes were quantified by way of Cohen's d (.20 small effect, .50 medium effect, .80 large effect). We interpreted statistically significant comparisons which reached a d threshold of $|\cdot35|$ (small to medium effect). This threshold has been traditionally used in other MMPI research (Graham, Ben-Porath, & McNulty, 1999). To mitigate the risk of Type I error inflation, we only examined mean comparisons across MMPI-2-RF and CAT-PD-SF that were hypothesized to be associated with SMS use.

Results

Mean comparisons are presented in Table 1. Statistically significant comparisons reaching at least a .35 effect size (in the expected direction) are bolded. Contrary to hypotheses, in some cases the high SMS use group scored meaningfully lower than the low SMS group on indicators of emotional distress. Consistent with expectations, we found that the high SMS use group exhibited meaningfully higher scores than the low SMS use group on scales assessing externalizing, narcissistic, behavioral activation, and histrionic traits. These scales included antisocial behavior, hypomanic behavior, anger proneness, aggression, activation, aggressiveness, disconstraint, callousness, exhibitionism, grandiosity, irresponsibility, non-planfulness, and rudeness.

Table 1

Mean Comparisons across SMS Use Groups (N=80)

	Low Use (n=40)		High Use (n=40)		Statistical Comparisons		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
<u>SMS Use</u>							
Frequency	4.0	1.5	27.4	16.5	-8.917	<.001*	-2.59
Time	1.5	0.9	5.2	3.5	-6.506	<.001*	-1.69
<u>MMPI-2-RF</u>							
Internalizing Dysfunction	55.0	12.6	52.5	12.3	0.897	.187	.20
Externalizing Dysfunction	45.8	8.7	51.4	9.7	-2.713	.004*	-.61
Low Positive Emotions	54.7	13.5	48.7	9.8	2.266	.013*	.51
Antisocial Behavior	46.1	8.3	50.6	8.2	-2.422	.009*	-.54
Dysfunctional Negative Emotions	54.7	11.3	55.0	11.9	-0.087	.466	-.02
Hypomanic Behavior	47.4	6.6	57.1	13.0	-4.188	<.001*	-.98
Stress/Worry	59.2	12.8	57.9	14.0	0.428	.335	.10
Anxiety	61.1	18.2	54.0	13.0	2.023	.023*	.46
Anger Proneness	48.2	9.7	53.8	11.6	-2.317	.012*	-.52
Behavior-Restricting Fears	57.8	12.7	54.3	10.6	1.365	.088	.31
Multiple Specific Fears	46.8	8.6	47.8	6.4	-0.585	.280	-.13
Juvenile Conduct Problems	45.5	6.7	48.3	9.8	-1.474	.072	-.34
Substance Abuse	45.5	8.8	51.4	9.7	-2.830	.003*	-.63
Aggression	45.8	8.5	50.2	10.7	-2.050	.022*	-.46
Activation	51.0	8.8	58.8	13.2	-3.119	.002*	-.71
Shyness	50.3	10.5	49.3	12.0	0.386	.350	.09
Aggressiveness	46.4	8.3	53.4	11.2	-3.180	.001*	-.72
Disconstraint	47.6	10.1	52.0	10.3	-1.942	.028*	-.43
Negative Emotionality	56.2	12.1	57.0	11.9	-0.277	.392	-.06
Low Positive Emotionality	53.1	12.5	43.0	9.7	4.046	<.001*	.91
<u>CAT-PD-SF</u>							
Anger	2.2	0.8	2.4	0.9	-1.527	.066	-.34
Anhedonia	2.0	0.8	2.0	0.8	0.383	.352	.09

Anxiousness	2.9	1.1	2.4	0.9	1.839	.035*	.41
Callousness	1.4	0.4	1.7	0.4	-2.311	.012*	-.52
Depressiveness	2.3	1.1	2.3	1.0	0.115	.455	.03
Emotional Detachment	2.9	1.0	2.8	0.9	0.369	.357	.08
Exhibitionism	2.2	0.6	2.9	0.8	-4.143	<.001*	-.94
Grandiosity	1.4	0.4	1.8	0.7	-2.869	.003*	-.68
Hostile Aggression	1.3	0.4	1.6	0.6	-2.458	.008*	-.56
Irresponsibility	1.7	0.5	1.9	0.5	-1.744	.043*	-.39
Manipulativeness	1.3	0.4	1.6	0.6	-2.085	.020*	-.48
Non-Planfulness	2.0	0.7	2.4	0.7	-2.460	.008*	-.55
Norm Violation	1.5	0.6	1.7	0.7	-1.443	.077	-.32
Rudeness	1.6	0.6	2.1	0.9	-2.924	.003*	-.66
Social Withdrawal	2.3	0.9	2.0	0.7	1.954	.027*	.44

Note. *p*-values are one-tailed; bolded rows have effect sizes of $|\geq .35|$ or higher in the expected direction (small to medium effect); * $p < .05$; SMS (Social Media Use); MMPI-2-RF (Minnesota Multiphasic Personality Inventory-2-Restructured Form); CAT-PD-SF (Computerized Adaptive Test of Personality Disorders Static Form); M (Mean); SD (Standard Deviation); *d* (Cohen's *d*).

Discussion

The current body of literature is equivocal on the relationship between SMS use and personality dysfunction. Many studies on SMS use are limited to specific mental illnesses and do not account for a broad scope of temperamental factors underlying psychopathology. The purpose of this study was to examine the relationships between SMS use and previously uninvestigated dimensional facets of personality pathology as operationalized by the CAT-PD-SF and the MMPI-2-RF. Results revealed that the high SMS use group exhibited significant and meaningfully higher scores in the area of externalizing dysfunction. Several aspects of these findings warrant further discussion.

It was hypothesized that those who were high in SMSs use would exhibit higher levels of personality traits underlying externalizing disorders. Consistent with this hypothesis, we found that the high SMS use group produced significantly and meaningfully higher scores on the MMPI-2-RF Behavioral/Externalizing Dysfunction, Hypomanic Behavior, Activation, Aggression, Anger Proneness, and Antisocial Behavior scales. These scales are associated with underlying constructs of antisocial personality disorder and borderline personality disorder (Anderson, Sellbom, Pymont, Smid, De Saeger, & Kamphuis, 2015). We also hypothesized that the high SMS use group would produce higher scores on scales related to narcissistic personality disorder. The presence of significantly and meaningfully greater CAT-PD-SF Exhibitionism, Grandiosity, Manipulativeness, and Rudeness scores among heavy SMS users indicates an increased presence of constructs underlying narcissistic traits (Rosen et al., 2013; Pearson & Hussain, 2015).

We hypothesized the presence of behavioral activation in individuals who use SMSs highly frequently and for long durations. The presence of meaningfully greater scores among heavy SMS users from the MMPI-2-RF Hypomanic Behavior, Activation, Disconstraint, and CAT-PD-SF Exhibitionism, Grandiosity, and Hostile Aggression scales supports this hypothesis. We also hypothesized an association between high SMS use and the presence of histrionic characteristics. This hypothesis was supported, as the high SMS use group produced greater scores on the Exhibitionism, Grandiosity, and Manipulativeness scales than the low SMS use group.

Contrary to our hypotheses, our analyses did not indicate meaningfully higher internalizing characteristics in the high SMS group. Rather, in contrast to our hypotheses, the analyses revealed that the high SMS use group scored meaningfully *lower* on the Low Positive Emotions, Anxiety, Low Positive Emotionality, Anxiousness, and Social Withdrawal scales. Future research into SMS use as a protective factor against internalizing characteristics is thus indicated. Alternatively, those who are higher in positive emotionality/extraversion may use social media more frequently.

The current study has limitations that indicate areas for future research. Although we had a sample that generalized well to the common ages of individuals who frequently engage in SMSs, the participant sample consisted primarily of Caucasian young adults. Future studies should gather a sample with greater racial and age diversity to ensure the generalizability of results. Also, the SMS use questionnaire used in the current study surveyed how often and for how long a participant used SMSs. Future studies should gather information about SMS platforms (e.g., Facebook, Instagram, etc.) and motivations to use SMSs. Finally, due to the limitations of the study design, it is not possible to determine if high SMS use causes high scores on the criteria or vice versa. Future experimental designs can clarify the extent to which 1) SMS use increases the level of temperamental vulnerability factors of mental illness versus 2) individuals with these temperamental characteristics seek out opportunities to engage in SMS. These two possibilities may also interact.

Notwithstanding these limitations, the results of the current study indicate that people who exhibit high SMS use experience higher levels of personality traits associated with behavioral activation, antisociality, narcissism, histrionic personality, and borderline personality.

About the Authors

Keefe Maccarone, B.S. is with Kent State University. Correspondence concerning this article should be addressed to kmaccaro(at)kent.edu.

Anthony Michael Tarescavage, PhD is with **John Carroll University**.

References

- Anderson, J. L., Sellbom, M., Pymont, C., Smid, W., De Saeger, H., & Kamphuis, J. H. (2015). Measurement of DSM-5 section II personality disorder constructs using the MMPI-2-RF in clinical and forensic samples. *Psychological Assessment, 27*(3), 786-800.
- Baker, D. A. & Algorta, G. P. (2016). The relationship between online social networking and depression: A systematic review of quantitative studies. *Cyberpsychology, Behavior, and Social Networking, 19*(11), 638-648.
- Barker, V. (2009). Older adolescents' motivations for social network site use: The influence of gender, group identity, and collective self-esteem. *Cyberpsychology and Behavior, 12*(2), 209 – 213.
- Ben-Porath, Y. S., & Tellegen, A. (2008/2011). *MMPI-2-RF: Manual for administration, scoring and interpretation*. University of Minnesota Press.
- Ben-Porath, Y.S. (2012). *Interpreting the MMPI-2-RF*. University of Minnesota Press.
- Brusilovskiy, E., Townley, G., Snethen, G., & Salzer, M. S. (2016). Social media use, community participation and psychological well-being among individuals with serious mental illnesses. *Computers in Human Behavior, 65*, 232-240.
- Graham, J. R., Ben-Porath, Y. S., & McNulty, J. L. (1999). *MMPI-2 correlates for outpatient community mental health settings*. University of Minnesota Press.
- Haber, J. C., & Baum, L. J. (2014). Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF) Scales as predictors of psychiatric diagnoses. *South African Journal of Psychology, 44*(4), 439-453.
- Oberst, U., Wegmann, E., Stodt, B., Brand, M., & Chamarro, A. (2017). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of Adolescence, 55*, 51-60.
- Pearson, C. & Hussain, Z. (2015). Smartphone use, addiction, narcissism, and personality: A

- mixed methods investigation. *The International Journal of Cyber Behavior, Psychology, and Learning*, 5. 17-32.
- Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M., & Cheever, N. A. (2013). Is Facebook creating “disorders”? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior*, 29(3), 1243-1254.
- Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression and anxiety: A systematic review. *JMIR Mental Health*, 3(4), e50.
- Simms, L. J., Goldberg, L. R., Roberts, J. E., Watson, D., Welte, J., & Rotterman, J. H. (2011). Computerized adaptive assessment of personality disorder: Introducing the CAT-PD project. *Journal of Personality Assessment*, 93(4), 380-389.
- Tellegen, A., Ben-Porath, Y. S., McNulty, J. L., Arbisi, P. A., Graham, J. R., & Kaemmer, B. (2003). *MMPI-2 Restructured Clinical (RC) scales: Development, validation, and interpretation*. University of Minnesota Press.
- Thimm, J. C. (2020). The Norwegian Computerized Adaptive Test of Personality Disorder-Static Form (CAT-PD-SF): reliability, factor structure, and relationships with personality functioning. *Assessment*, 27(3), 585-595. <https://doi.org/10.1177/1073191117749296>.
- Wilson, K., Fornasier, S., & White, K. M. (2010). Psychological predictors of young adults' use of social networking sites. *Cyberpsychology, Behavior, and Social Networking*, 13(2), 173-177.