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INTERACTION BETWEEN MACHIAVELLIANISM, HOSTILITY, AND SOCIAL MEDIA USE IN CYBERBULLYING BEHAVIOR

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Abstract

Previous research has shown a small positive correlation between Machiavellianism and cyberbullying behavior, as well as between Machiavellianism and hostility. Research has not determined which factors have more predictive power for online behavior. This study attempted to find the answer to this. The research administered questionnaires to 63 participants to measure Machiavellianism, social media use integration, hostility, and cyberbullying perpetration. A moderated multiple regression analysis showed that Machiavellianism, social media use integration, and hostility did not have a significant impact on cyberbullying behavior.

Keywords: machiavellianism, social media, hostility, social psychology, personality, cyberbullying, aggression

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INTRODUCTION

Over the past decade, researchers have conducted a variety of studies on Machiavellianism, non-pathological narcissism (as opposed to Narcissistic Personality Disorder), and non-pathological psychopathy (as opposed to psychopathy as is often used to refer to Antisocial Personality Disorder), often grouping them together as the *Dark Triad* of personality traits (Paulhus & Williams, 2002). For the most part, research has focused on the entire Dark Triad, as Machiavellianism, non-pathological narcissism, and non-pathological psychopathy tend to correlate with one another. However, other research has confirmed that they are three separate constructs (Paulhus & Williams, 2002). While every part of the Dark Triad is associated with callousness and manipulation, Machiavellianism specifically refers to a personality trait primarily defined by manipulative behavior and cynical beliefs. Someone high in Machiavellianism would be likely to view other people as tools, or as means to an end. While Machiavellianism is correlated with a hostile world view, research has not shown that it has any connection to other aspects of interpersonal aggression (Jones & Neria, 2015). A positive correlation also exists between all three aspects of the Dark Triad and joy taken in the misfortune of others (James, Kavanagh, Jonason, Chonody, & Scrutton, 2014).

In addition to general research exploring whether the Dark Triad relates to aggression, researchers have also sought connections to specific social phenomena. For example, one study by Chabrol, Van Leeuwen, Rodgers, and Séjourné (2009) looked into how the traits relate to juvenile delinquency. The study found that the Dark Triad traits, as well as sadism, were higher in adolescents than in older populations. Such a finding indicates the possibility that Machiavellianism, along with the other Dark Triad traits, may decrease as the individual grows older, as does delinquency. While Machiavellianism itself was not found to be related to delinquency, it did correlate with sadism. The lack of a correlation with delinquency could potentially be related to societal expectations and the social desirability effect, in which more mature participants in a study will answer questions in what they believe the researchers will consider a more favorable manner. Other research has shown that subjects high in Machiavellianism valued their friendships less than most. The researchers acknowledged the possibility that the lack of value placed on friendships could be a defense mechanism in response to insecure attachment styles (Lyons & Aitken, 2010). In short, while researchers have found mixed results regarding Machiavellianism as it relates to aggressive behavior, those with high levels of Machiavellianism tend to have poor interpersonal relationships.

While studies on offline interactions remain valuable, the increasing importance of social media in modern society opens up new possibilities for psychological questions. Two thirds of Americans use social media (Kolmes, 2012), a fact which confirms its impact on human interaction. Those who use the Internet are subject to the online disinhibition effect (Suler, 2004), in which the nature of online interaction causes one to become less subject to whatever social restrictions would be considered normal within the individual's

culture. The online disinhibition effect may lead to actions which one may not consider acceptable when communicating in person. This effect has several contributing factors, such as anonymity and the minimization of authority. The results of this effect may be further impacted by factors within an individual's personality, although the specific online environment and behavior of others cannot be ignored as additional potential contributors (Suler, 2004). However, there is limited research into how personality interacts with the online environment in order to facilitate or possibly limit the online disinhibition effect.

Some of the limited research into personality traits as they relate to online behavior has focused specifically on the Dark Triad and online aggression. One of the resulting studies showed that non-pathological psychopathy had the most predictive power for determining the likelihood of cyberbullying behavior, although all three traits had a positive correlation with cyberbullying behavior (Goodboy & Martin, 2015). One possible explanation for the correlation is that all of the Dark Triad traits tend to have a positive relationship with hostile humor and a need for social dominance, both of which may contribute to aggressive behavior. A study specifically focusing on Machiavellianism and behavior on Facebook indicated that participants of all genders with high scores in Machiavellianism were also more likely to be high in online self-monitoring (Abell & Brewer, 2014), the trait in which people intentionally adjust their behavior on the Internet in order to appear more socially desirable. Abell and Brewer acknowledged the possibility that social desirability could correlate with Machiavellianism due to the fact that giving a positive impression would make it easier to manipulate others; someone is more likely to listen to somebody they trust or even like, after all. Another study on the matter indicated that the intensity of social media usage also correlated positively with online aggression such as cyberbullying, although the participants' level of interest, number of friends, and number of social media website memberships had a greater impact than time spent online (Pabian, De Backer, & Vandebosch, 2014).

Previous research had its weaknesses. A large portion of the studies relied on the Dirty Dozen measure (Jonason & Webster, 2010), a scale consisting of 12 test items with a subscale for each Dark Triad trait which allows researchers to evaluate Machiavellianism, non-pathological narcissism, and non-pathological psychopathy at the same time. The study which indicated the strongest connection between Machiavellianism and online behavior focused specifically on Facebook (Abell & Brewer, 2014). Different social media websites may impact behaviors in different ways, so a study on Facebook alone lacks generalizability to the entirety of computer-mediated interactions.

The study of the relationships between cyberbullying and personality traits, including Machiavellianism, has numerous potentially fruitful directions for further study. For one, there is insufficient research examining the potentially complex connection between certain personality constructs and behavior online. For example, is cyberbullying more likely due to Machiavellianism itself, or are people high in Machiavellianism spending more time on the Internet, leading to a greater likelihood of cyberbullying?

Previous research has not accounted for the possibility, but greater exposure to the online disinhibition effect (Suler, 2004) may increase the likelihood for the online disinhibition effect to affect individual behavior. Furthermore, those who are more emotionally invested in their time on the Internet could behave differently from individuals who consider it to be a less important part of their lives. In addition, given the strong positive correlation between Machiavellianism and hostility (Jones & Neria, 2005), research has not separated the effects of Machiavellianism from those of hostility itself.

The current study examined the prediction of cyberbullying behavior by Machiavellianism, hostility, and social media use. More specifically, it sought to explore which factor was most predictive of interpersonal aggression over the Internet: Machiavellianism, hostility itself, or the integration of social media into everyday life. The following hypotheses were tested:

Hypothesis 1: Machiavellianism, hostility, and social media integration will all positively correlate with cyberbullying behavior.

Hypothesis 2: Machiavellianism will show a stronger prediction of cyberbullying behavior than hostility.

METHOD

Participants

After obtaining approval from the IRB, the researcher recruited 63 undergraduate psychology students from a private college in New York State, using a verbal script to contact students in their classrooms. All students were encouraged to participate, with 38.71% of the obtained sample being freshmen, 24.19% of the sample being sophomores, 30.65% of the sample being juniors, 4.76% of the sample being seniors, and 1.61% of the sample being graduate students. The sample included 76.19% female participants, 22.22% male participants, and 1.59% participants who did not identify as male or female. The sample consisted mostly of non-Hispanic white students (65.08%), but also included black (15.87%), Hispanic (9.52%), multiracial (4.76%), Pacific Islander (1.59%) and unspecified (3.17%) students. The average age for the sample was 20.50 years ($SD = 4.47$). A power analysis found that the study was underpowered for a medium effect size ($f^2 = .15$), which would have required 76 participants.

Materials and Procedures

The researcher provided those who expressed interest in participating with questionnaire packets. The packets included the informed consent form and demographics sheets for age, year in college, race or ethnicity, and gender as well as the four scales.

The Mach-IV (Christie & Geis, 1970) measured Machiavellianism. As the most detailed scale available for Machiavellianism, it consisted of 20 questions. The three subscales measured manipulative tactics, morality, and views of humanity. The manipulative tactics subscale measured how the respondent achieves goals, with higher agreement with statements regarding deception or taking advantage of others indicating higher levels of Machiavellianism. Morality referred to the respondent's concern with traditional ideas of right and wrong; someone who is unconcerned with morality would score higher in Machiavellianism. The views of humanity subscale measured cynicism, especially as far as the belief that others are also manipulative is concerned. Each item was scored on a Likert-type scale with an answer of 1 representing *strongly disagree* and an answer of 6 representing *strongly agree*. The sum of the answers to the questionnaire represented the composite score. Scores could range from 20 to 120. The scales for tactics, morality, and views demonstrated low to adequate internal consistency, $\alpha = .70$, $\alpha = .49$, and $\alpha = .50$ respectively, though these were almost certainly influenced by the low number of items on each subscale. The overall measure showed adequate internal consistency ($\alpha = .71$).

To measure hostility, the researcher used the hostility subscale of the Aggression Questionnaire (AQ; Buss & Perry, 1992). The original questionnaire contained 29 items, but the hostility subscale alone consisted of nine items. In addition, the AQ's answers ranged from 1 for *extremely uncharacteristic of me* to 6 for *extremely characteristic of me*. The sum of the answers to the questionnaire represented the composite score. Possible composite scores ranged from 9 to 54. The hostility subscale showed adequate internal consistency ($\alpha = .78$).

The Social Media Use Integration Scale (SMUIS; Jenkins-Guarnieri, Wright, & Johnson, 2013) measured the impact of social media on each participant's life. The focus was not on time spent on the Internet, but instead relied on how important social media was to the respondents. For example, it asked whether or not the respondent felt disconnected after being away from the Internet for a long time. The scale included 10 items. While the original scale had specifically focused on Facebook, the researcher changed the wording slightly to apply to social media in general by changing every instance of *Facebook* to say *social media websites*. The answers were scored as a Likert-type scale ranging from 1 for *strongly disagree* to 6 for *strongly agree*. The sum of the answers to the questionnaire represented the composite score. The possible range of composite scores had a range from 10 to 60. The SMUI showed adequate internal consistency ($\alpha = .83$).

The Cyberbullying Perpetration Measure (CPM; Wong, Chan, & Cheng, 2014) consisted of nine items asking about how frequently the participants had participated in various cyberbullying behaviors, such as harassment. The measure used a Likert-type scale ranging from 1 for *never* to 4 for *five or more times*. The sum of the answers to the questionnaire represented the composite score. Scores could range from 9 to 36. The CPM showed low internal consistency ($\alpha = .51$).

The four questionnaires took participants a total of approximately 30 minutes to complete. After completing the questionnaire packets at home, participants brought them back to their next class period, at which time the researcher collected the materials. The researcher separated informed consent forms and demographics information from the questionnaires while collecting the packets to ensure anonymity. The researcher thanked and debriefed the participants.

RESULTS

The researcher excluded two participants from analysis due to a large portion of missing data (>10%), resulting in a sample of 61 participants. Afterward, the researcher analyzed the available items, beginning with their normality. Machiavellianism (skewness = -.222, mdn = 58) and social media use integration (skewness = -.235, mdn = 34) were both slightly negatively skewed, while hostility had a mild positive skew (skewness = .430, mdn = 25) and cyberbullying perpetration was highly positively skewed (skewness = 2.255, mdn = 10). The researcher also tested the cyberbullying data for heteroscedasticity. Since the data turned out to be very low in heteroscedasticity, no further tests were required. Overall, scores on the CPM were low, ranging from 9 to 22. The results indicated no significant relationship between cyberbullying behavior and any of the other variables. In fact, the only significant relationship found was between Machiavellianism and hostility (r = .452, $p < .001$) shown in Table 1, with the highest correlation being between the Tactics subscale of the Mach-IV and hostility (r = .424, p = .001). There was no significant correlation between hostility and the Morality subscale of the Mach-IV. A Spearman's correlation was run to determine the relationship between cyberbullying perpetration and each of the other measures. There were still no significant correlations except between Machiavellianism and hostility (ρ = .412, $p < .001$).

Table 1. **Correlation Between Machiavellianism, Social Media Use Integration, Hostility, and Cyberbullying Perpetration**

Measure	1	2	3	4
1. Machiavellianism	–			
2. Social Media Use	-.002	–		
3. Hostility	.452**	.233	–	
4. Cyberbullying	.037	-.077	-.131	–

Note*: ** shows significance at $p < .01$

The first hypothesis stated that Machiavellianism, social media use integration, and hostility would all predict cyberbullying behavior. The researcher entered the three predictors and an interaction term of Machiavellianism and social media use integration into a linear regression model using SPSS 19. The overall model was not statistically significant ($R^2 = -.030$, $p = .687$), nor was there a significant interaction between Machiavellianism and social media use integration in predicting participants' cyberbullying behavior ($\beta = .108$, $p = .475$), as shown in Table 2. Hypothesis 1 was not supported.

Table 2. **Summary of Multiple Regression Analysis for Cyberbullying Perpetration and the Interaction of Machiavellianism X Social Media Use Integration**

	B	SE(*B*)	β	*t*	Sig(*p*)	ΔR^2
Step 1						.030
Machiavellianism	.035	.044	.116	.790	.433	
Social Media Use	-.015	.056	-.036	-.263	.794	
Hostility	-.073	.063	-.176	-1.159	.251	
Step 2						.009
Machiavellianism	.044	.046	.147	.955	.344	
Social Media Use	-.027	.058	-.065	-.460	.647	
Hostility	-.089	.067	-.213	-1.325	.191	
Mach X SMUI	.318	.442	.108	.719	.475	

Note: Total *F* at Step 2 = .568, Adjusted R^2 = -.030, $p = .687$.

According to the second hypothesis, Machiavellianism would have the strongest positive relationship with cyberbullying. Through a correlation analysis, the researcher found that this was not the case; Machiavellianism showed no significant relationship with cyberbullying behavior ($r = .037$, $p = .777$), which can be seen in Table 1. Hypothesis 2 was not supported.

DISCUSSION

The study attempted to analyze the relationships between Machiavellianism, social media use integration, and hostility in helping to determine cyberbullying behavior. Contrary to the hypotheses, none of the independent variables significantly predicted cyberbullying perpetration. Likewise, relationships among the study variables were not

significant with one exception: Machiavellianism and hostility were positively correlated. This finding was not similar to previous findings by Jones and Neria (2015).

The relationship between Machiavellianism and hostility found in this study strengthens the likelihood of a genuine connection between the two factors. Further research could continue to investigate the relationship and search for whether there are other variables which influence both.

Machiavellianism did not predict cyberbullying behavior. The lack of significant relationship could have occurred for several reasons. The lack of a relationship between Machiavellianism and cyberbullying perpetration is at odds with Goodboy and Martin's (2015) study which found that all three Dark Triad traits correlated positively with cyberbullying behaviors. Likewise, in the current study social media use integration did not have a significant positive relationship with cyberbullying, which contrasts with previous research (Pabian et al., 2014). One possible explanation is that the scale used for social media use integration does not measure the amount of time spent on social media or give any indication regarding how present the online disinhibition effect is. In order to determine the reasons behind both apparent discrepancies, it would be best to investigate the weaknesses within this study and improve upon the design and sample selection in future research.

The lack of a correlation between personality traits and aggressive online behavior could indicate that the causes behind cyberbullying are a matter of the online environment rather than of the individual's personality. This would also account for the overall low scores on the CPM, considering the fact that popular social media websites such as Facebook are far from anonymous, especially with an increasing number of older adults using them as well (Kolmes, 2012). With closer authority figures and a lack of anonymity, the online disinhibition effect would likely not be as strong. Furthermore, the fact that Machiavellianism did not correlate with aggressive online behavior indicates that the findings of Chabrol et al. (2009) that Machiavellianism does not correlate with delinquency such as bullying may not change even over the Internet. The fact that the study used the Mach-IV did help it, as other studies primarily relied on the Dirty Dozen, which is briefer and less specialized. The SMUI has not been used in relation to the online disinhibition effect before, as other studies relied more heavily on behavioral observation. Unfortunately, the researcher did not have access to a larger or more diverse sample, which would have improved statistical power and generalizability. Other studies have used a variety of samples; some used adults, while others focused on juveniles or college students.

Limitations of This Study

The data collected for cyberbullying perpetration had little variation in general, with the vast majority of the composite scores being the minimum. As a result, it would be reasonable to question the overall usefulness of the scores. If a sample had a wider range

of scores for cyberbullying perpetration, it could potentially be easier to analyze whether relationships actually exist between the dependent variable and other variables.

The lack of variation in this case could be due to the sample selection process itself. The researcher had chosen participants from psychology classes. It is possible that students studying psychology may be less likely to perpetrate any form of cyberbullying, either out of genuine empathy or out of concern for future career prospects. Despite the use of anonymity to ensure that responses would not be tied to individual participants, social desirability may also have played a role. The effect could have occurred with or without the participants' awareness. Furthermore, there may have been incidences of the scenarios mentioned in the CPM which participants may have perpetrated but not remembered. Observational studies would have ensured more accurate measures of cyberbullying perpetration.

The sole use of college students carries other problems as well. With a majority of participants being younger than 25, it is possible that the personality traits studied could change over time, along with behavior over social media and the intensity of social media use. Likewise, the fact that participants were 18 or older could indicate that their behavior and social media use has already changed. In general, more mature individuals may simply be less likely to perpetrate cyberbullying. In addition, Chabrol et al. (2009) had found support for the idea that the Dark Triad Traits, including Machiavellianism, do in fact decline with age. College students could also use social media more to keep in contact with old friends or to run a page for any clubs they may be involved in, leading to higher scores on the Social Media Use Integration Scale.

Future Study

Future research on this matter could investigate the same topic using a different questionnaire for social media use, in order to acquire a more complete measure for the intensity of social media usage. In addition, a more diverse sample instead of a sample consisting primarily of white females with reportedly harmless patterns of online behavior could produce different results. A different scale for cyberbullying perpetration, which could include a wider range of behaviors, would also have the potential to improve results. Furthermore, including a measure of how important the participants consider social desirability could allow future researchers to control for the social desirability effect.

Beyond replication, future studies could also further analyze the connection between Machiavellianism and hostility. While one can confidently say that a relationship exists between the two (Jones & Neria, 2015), research has not yet explained why it exists. There could be a separate factor affecting both of them, or one could directly affect some aspects of the other. The use of a more detailed hostility scale would allow researchers to compare subscales for both constructs. Furthermore, a method of differentiating chronic hostility from current feelings of anger could help avoid confounding variables.

Since this study focused on social media as a whole, future research could also seek to understand how online cultures may vary from one social media platform to another, and how this may affect individual behaviors. It could also analyze the frequency of social media use in order to see whether it had more or less of an effect on behavior than the social media website itself. If significant differences do exist, finding them could lead into research regarding what makes the social environments of websites differ from one another, and how each one may impact behavior and social aggression.

While Machiavellianism has not been shown within this study to affect cyberbullying behavior, it may influence other online behaviors. Future research should investigate how this trait, along with other personality traits, impact various online behaviors. Comparison between the effects of personality online versus the effects of personality in offline situations may also prove useful.

The study also carries relevance for the social sciences overall. As people spend more time over the Internet, sociology should turn more toward electronically-mediated interactions and how they shape society. Cyberbullying serves as one example of such an interaction. Furthermore, future studies may focus on variations in online behaviors between different cultures. Someone in North America, for example, may behave differently over social media than someone in Eastern Europe.

Conclusions

Machiavellianism, social media use integration, and hostility do not appear to significantly impact cyberbullying perpetration, contrary to the hypotheses. Continuing research should focus on the relationship between Machiavellianism and hostility, or online behavior's variability across various types of websites. In addition, further research could focus on how traits such as Machiavellianism affect other behaviors, both online and offline.

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