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Explaining Privacy Control on Instagram and Twitter: The Roles of Narcissism and Self-Esteem

Yioryos Nardis & Elliot Panek

A growing body of research examines the relationships between psychological traits and privacy behaviors on Social Networking Sites (SNSs) to understand why users control information about themselves. This study investigates how narcissism and self-esteem can explain tendencies to control privacy on two widely used platforms: Instagram and Twitter. Data from an online survey (n = 510) are analyzed using linear mixed models. The exhibitionism component of narcissism tends to be associated with less privacy control on SNSs, i.e., profiles that are publicly accessible. Conversely, the superiority component of narcissism and self-esteem are associated with more privacy control. Across platforms, as self-esteem increases, the likelihood of having public settings on Instagram is significantly lower than on Twitter. The findings are discussed in the context of the different affordances that the two platforms present users with. The results indicate that privacy behaviors may be tied to relatively stable personality traits, suggesting that even as technologies and social norms with regard to privacy change, behaviors that limit the number of people to which individuals disclose personal information may remain the same.

Keywords: Social networking sites; privacy; psychological traits

Social Networking Sites (SNSs) continue to serve as widely used venues for personal disclosure. Such computer-mediated disclosures are made not only to close friends and family but also, in some cases, to a greater public. SNSs facilitate communication

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Replication data and script: <https://dataverse.harvard.edu/dataverse/yioryos-nardis>

among large and diverse networks of people and in doing so, have forced individuals and societies to reconsider the value and definition of privacy in everyday interactions. Among the questions raised by these circumstances are those that concern explanations of privacy behaviors on SNSs.

A growing body of research examines the psychological traits that explain privacy behaviors on SNSs to understand how and why users control information about themselves (Ho, Lwin, Yee, & Lee, 2017). Such explorations cast privacy preferences as actions rooted in dispositions rather than orientations toward the specific technology of SNSs. Narcissism and self-esteem are often espoused as explanations for the motivations of SNS use generally and—more specifically regarding privacy—attempts to reach larger audiences (Mehdizadeh, 2010), connecting with strangers (Carpenter, 2012), and controlling privacy (Utz & Krämer, 2009).

This study aims to improve understanding of privacy control and its underlying psychological mechanisms by examining actual privacy settings users implement on SNSs. As advocated by prior research (Ackerman et al., 2011), it also takes a fine-grained approach to the study of narcissism by considering how two specific components of narcissism, Exhibitionism and Superiority, relate to privacy control. Lastly, it examines behavior on Instagram and Twitter, as they present users with different affordances (Sundar & Limperos, 2013) that could impact privacy concerns and willingness to share information.

Psychological Traits and Privacy on SNSs

Narcissism

Narcissism is the tendency to consider oneself to be better than others, to engage in self-centered thinking, and to continually seek admiration (Campbell, Rudich, & Sedikides, 2002). As a result, individuals high in narcissism often use personal interactions for self-enhancement and self-promotion. SNSs are ideal environments for narcissistic behavior to materialize, as they allow individuals to selectively choose how to present themselves. In fact, individuals higher in narcissism exhibit greater self-promotional behavior on SNSs through status updates (McKinney, Kelly, & Duran, 2012), descriptions of oneself, and photos (Mehdizadeh, 2010).

Though there is agreement that narcissism should be treated as a multidimensional construct (Ackerman et al., 2011), there remains a variety of distinctions one might make among types of narcissism. One distinction is between overt, grandiose narcissism (marked by overconfidence and extraversion) and covert, vulnerable narcissism (marked by insecurity and defensiveness). Within the category of grandiose narcissism, there exist further distinctions, for instance, between narcissists defined by their desire to be seen (i.e., “Exhibitionism”), those who perceive themselves to be superior to others (i.e., “Superiority”), and those who are merely self-sufficient (i.e., “Self-sufficiency”).

Two components of grandiose narcissism in particular may be relevant for SNS privacy behaviors. Exhibitionism, the process of making oneself known to others, has been identified as a predictor of self-promoting behaviors on Facebook such as posting status updates and photos of oneself (Carpenter, 2012). This is driven by the desire for admiration and to construct a desirable self-image, rather than establishing meaningful interpersonal relationships. Similarly, Superiority, the perception that one is better than others, and Exhibitionism have been identified as the strongest predictors of posting frequency on Facebook and Twitter after accounting for other components of narcissism (Panek, Nardis, & Konrath, 2013). Those who feel superior to others also have the desire to communicate their achievements through SNSs.

Given that these components of narcissism are most likely to be associated with wanting to reach broader audiences, individuals exhibiting higher levels of these traits are expected to be less likely to exercise privacy control on SNSs.

H1: *Exhibitionism will be positively related to less privacy control on SNSs.*

H2: *Superiority will be positively related to less privacy control on SNSs.*

Self-Esteem

Self-esteem is the sense of personal worth that one associates with oneself (Campbell et al., 2002). High self-esteem signifies a positive attitude toward oneself and is linked to healthy psychological outcomes. While narcissism and self-esteem tend to exhibit low to moderate positive correlations with each other, the substantive association between them is quite small, and research points to them as being different in their inception, development, and effects (Brummelman, Thomaes, & Sedikides, 2016).

Individuals who lack social confidence may consider SNSs as environments that make it easier for them to maintain relationships. SNSs allow more control over self-presentation than in face-to-face contexts, and this can help individuals with low self-esteem overcome apprehensions about socializing with those outside of their immediate circle.

Individuals with low self-esteem may therefore see SNSs as safe places for self-expression and feel that the relationships they afford allow them to easily gain support and attention (Forest & Wood, 2012). In fact, they tend to be more active SNS users, post more self-promotional content (Mehdizadeh, 2010), and have less intention to control their privacy (Ahn, Kwolek, & Bowman, 2015). This suggests that they are more interested in sharing personal information with a wider audience than individuals with high self-esteem, who instead are concerned with how their close social circles evaluate them and thus more cautious when disclosing information. We seek to replicate the findings of Ahn et al. (2015) by assessing the relationship between self-esteem and privacy control on SNSs.

H3: *Self-esteem will be positively related to more privacy control on SNSs.*

The Relevance of SNS Platform to Privacy Behaviors

Examining two of the most widely used SNSs, Instagram and Twitter, can help us better understand differences in privacy norms across platforms. We focus on these platforms for two reasons. First, they have similar privacy settings. Users can make their entire profiles “private” or “public,” as the two platforms do not offer detailed privacy settings. By setting their SNS profile to “private,” users engage in active curation of their audience, as they choose whether to accept or reject requests to “follow” their profile. Public accounts do not require the owner’s permission to “follow” their profile.

Second, the platforms present users with different affordances that may influence privacy norms. Instagram relies on richer imaged-based social cues than Twitter, which is primarily text-based. Communication using rich social cues is considered more personal and sensitive than communication using poor social cues (Yoo & Alavi, 2001). A comparison of gratifications sought by users of four SNSs (Instagram, Twitter, Facebook, and Snapchat) found Twitter users to be the most likely to connect with individuals with whom they have shared interests but not necessarily off-line relationships (Phua, Jin, & Kim, 2017). They post less personal content than Instagram users, as Twitter tends to be used primarily for entertainment and information-seeking purposes, particularly about daily life, work, and school (Forte, Dickard, Magee, & Agosto, 2014).

Instagram is typically used for self-expression and self-documentation through the showcasing of everyday life (Alhabash & Ma, 2017). A content analysis of Instagram found that half the photos users posted were of themselves (Hu, Manikonda, & Kambhampati, 2014), and due its visual nature, people are more likely to use Instagram than Twitter to request others’ opinions regarding their appearance (Forte et al., 2014).

Consequently, the relationships between traits and privacy control may vary across platforms. The affordances and networks that individuals are linked to through each SNS differ, which could affect privacy norms and willingness to share information (Jeong & Coyle, 2014). For instance, in a study of two country-specific SNSs (Hyves in the Netherlands; StudiVZ in Germany), participants with higher narcissism had more public privacy settings for one SNS, whereas no relationship was found for the other (Utz & Krämer, 2009). Existing research does not provide insight into whether the role of narcissism in privacy control may vary across Instagram and Twitter. Therefore, the following research questions are proposed:

RQ1: *Does the positive relationship between Exhibitionism and less restrictive privacy control differ across Twitter and Instagram?*

RQ2: *Does the positive relationship between Superiority and less restrictive privacy control differ across Twitter and Instagram?*

Given that the desire for personal disclosure is thought to drive individuals with low self-esteem toward computer-mediated communication (Forest & Wood, 2012), and that due to its visual nature Instagram is more apt to be used for personal disclosure than Twitter (Forte et al., 2014), then users with low self-esteem should have more to gain in their interpersonal relationships through Instagram than Twitter.

Therefore, the expected positive relationship between self-esteem and more privacy control should be stronger for Instagram than Twitter:

H4: *The positive relationship between self-esteem and more privacy control will be stronger for Instagram than Twitter.*

Methods

Participants and Procedure

A total of 510 participants from a U.S. undergraduate participant pool completed an online survey. Around 73% used Twitter and 81% used Instagram. Just over 64% used both, and close to 90% used at least one SNS. Responses from the 457 participants who used at least one SNS were retained. The retained sample was primarily White (84%) and female (76%), and the average age was 19 ($M = 18.79$; $SD = .81$).

Measures

Privacy control

Privacy control is measured through the privacy settings users implement. Respondents were asked to log into each of their SNSs, check their privacy setting, and enter it into the questionnaire separately for each SNS. To aid with recall, instructions on how to access their privacy settings were provided. Twitter had two privacy options (“Protect my Tweets,” on/off), as did Instagram (“Posts are Private,” on/off). For each SNS, a dichotomous variable indicating privacy setting (0 = “private”, 1 = “public”) was created. Around 61% of Twitter and 39% of Instagram users had public profiles.

Narcissism

Narcissism is measured using the 16-item Narcissism Personality Inventory (Ames, Rose, & Anderson, 2006). Each item pairs a narcissistic response with a nonnarcissistic response (e.g., 0 = “I am no better or no worse than most people”/1 = “I think I am a special person”) and respondents select the one that comes closest to describing their beliefs about themselves. Higher scores correspond to higher levels of narcissism. The NPI-16 has six subscales, including Exhibitionism (three items, $\alpha = .65$, $M = 1.29$, $SD = 1.07$) and Superiority (three items, $\alpha = .63$, $M = 1.21$, $SD = 1.05$), for which separate scores were computed. The distributions of both subscales are approximately normal: Exhibitionism (skewness = .04, kurtosis = -1.40); Superiority (skewness = .27, kurtosis = -1.20).

The reliabilities of the subscales are not particularly high and may weaken the observed associations with the outcome. Nonetheless, they are consistent with their design (Ames et al., 2006) and published research (Ackerman et al., 2011). The NPI-16 is a short measure of narcissism, and the low reliabilities may be due to the small number of items in each subscale (Ackerman et al., 2011). It has good predictive validity and validly captures the components of narcissism identified in the NPI-40, while lowering respondent burden (Ames et al., 2006).

Self-esteem

Participants completed the Rosenberg Self-Esteem Scale (1965). It consists of 10 items, and participants indicate their levels of agreement on a scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores correspond to higher self-esteem ($\alpha = .88$, $M = 2.99$, $SD = .48$). Self-esteem is normally distributed (skewness = -0.05 , kurtosis = $-.20$).

Analytic Strategy

Linear mixed models are used, as they allow differences across SNSs to be tested simultaneously in one model. The data were first reshaped from “wide format” to “long format” by collapsing the two separate Twitter and Instagram privacy setting variables into one “Privacy Setting” variable, such that each row represents a participant-SNS unit of observation. Participants who use both Instagram and Twitter are represented with two rows in the reshaped data, one for each SNS. Observations are nested within participants, and each participant is identified using an indicator variable. Linear mixed models account for the dependence of observations within participants due to the nested nature of the data by specifying intercept terms as random effects allowed to vary across participants. Differences in the relationships between traits and privacy control across SNS are tested using interactions between traits and SNS. Models were run using the *lme4* package in *R*.

Results

Table 1 summarizes the results of a mixed effects logistic regression model predicting privacy control. H1 expected Exhibitionism to be positively related to less privacy control on SNSs. As Exhibitionism increases, the likelihood of having public settings increases, providing support for H1. The odds of having a public setting increase by 31% for a one-unit increase in Exhibitionism.

Superiority was expected to be positively related to less privacy control on SNSs. However, as Superiority increases, participants are more likely to have private settings.

Table 1 Mixed Effects Logistic Regression Model Predicting Public Setting

	<i>b</i> (<i>SE</i>)	<i>z</i> -Value	Odds Ratio
Exhibitionism	.27 (.12)*	2.32	1.31
Superiority	-.35 (.12)**	-2.78	.71
Self-esteem	-.56 (.25)*	-2.20	.57
Age	-.04 (.15)	-.28	.96
Sex (female)	-1.30 (.30)***	-4.28	.27
SNS platform (Instagram)	-1.27 (.21)***	-6.10	.28
Intercept	4.14 (2.97)	1.39	62.83
<i>N</i>	781		

Note. *b* represents unstandardized coefficient estimates. *N* represents participant-SNS unit of analysis.
* $p < .05$; ** $p < .01$; *** $p < .001$.

The odds of having a public setting decrease by 29% for a one-unit increase in Superiority. Thus, H2 is not supported.

H3 expected self-esteem to be positively related to more privacy control on SNSs. As self-esteem increases, the likelihood of having public settings decreases, providing support for H3. The odds of having a public setting decrease by 43% for a one-unit increase in self-esteem.

To investigate whether the relationship between the components of narcissism and privacy control differed across SNSs, separate models were run with interaction effects between each component of narcissism and SNS. The results were nonsignificant, indicating that SNSs do not moderate the relationship between Exhibitionism and privacy setting ($b = .05$, $z = .31$, $p = .755$; RQ1), nor between Superiority and privacy setting ($b = -.22$, $z = -1.23$, $p = .221$; RQ2).

The interaction between self-esteem and SNS indicates that the association between self-esteem and privacy control differed significantly across Instagram and Twitter, providing support for H4. Twitter and Instagram did not differ in the likelihood of having public settings at the lowest level of self-esteem ($b = -.12$, $z = -.38$, $p = .703$). However, as self-esteem increases, the likelihood of having public settings on Instagram is significantly lower than on Twitter ($b = -.84$, $z = -2.13$, $p = .033$; Figure 1).

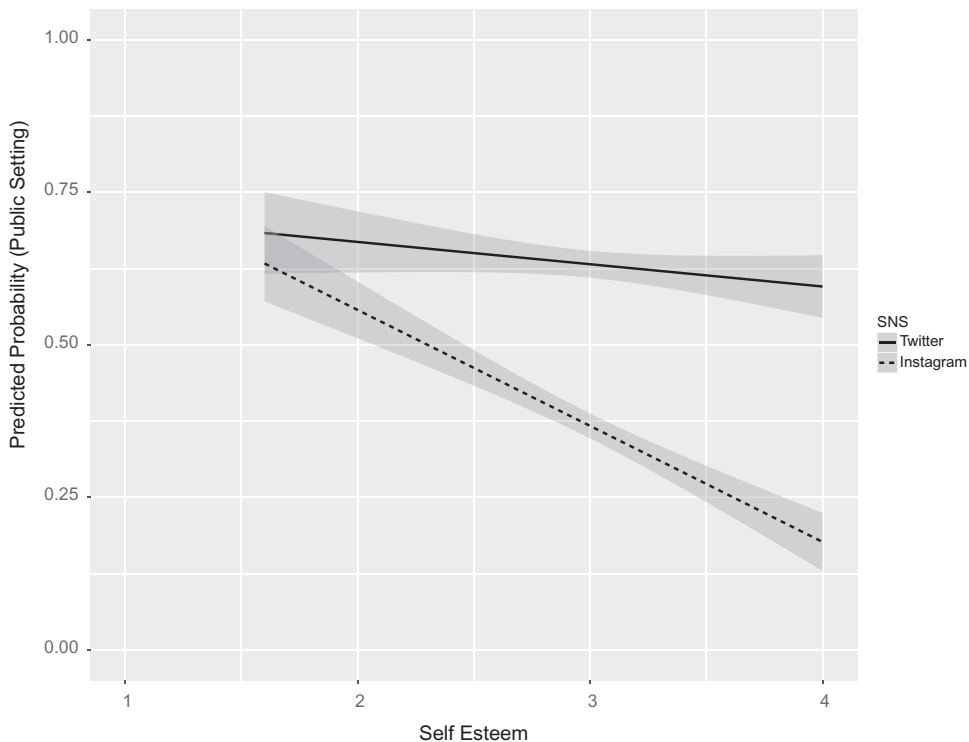


Figure 1 SNS as the moderator of the relationship between self-esteem and public setting.

Finally, females were more likely to have private settings. Age did not predict privacy setting.

Discussion

The study explored whether psychological traits can explain privacy control behavior on Twitter and Instagram by analyzing users' privacy settings. Individuals high in Exhibitionism are more likely to implement less restrictive privacy control on SNSs, i.e., profiles that are publicly accessible. This is consistent with past work, which finds that Exhibitionism is related to self-promoting behaviors online (Carpenter, 2012) and more frequent use and posting on SNSs (Panek et al., 2013). Unexpectedly, Superiority is related to a higher likelihood of implementing private settings. It was anticipated that those who feel they are better than others would want to communicate this via SNSs. However, it appears that they may instead desire to create the impression that their profiles contain privileged and exclusive content and therefore keep them private.

A prior examination of the relationship between grandiose narcissism and SNS privacy behaviors (Ahn et al., 2015) found no relationship. Our findings suggest that a fine-grained approach to studying grandiose narcissism—one that differentiates between users who score high on the “Exhibitionism” component from other grandiose narcissists—reveals a relationship between a particular type of grandiose narcissism and SNS privacy control. This is especially interesting given that Ahn et al. (2015) find that SNS users high in another type of narcissism—vulnerable narcissism—are more inclined to avoid disclosing personal information via SNS than other users. Taken together, these two sets of findings make an even more compelling case for differentiating among types of narcissism than either study can by itself. Whether one thinks highly of themselves tells us very little about the likelihood that one will avail themselves of SNS privacy controls: Narcissism can have a positive or a negative relationship with SNS privacy behaviors. To understand the relationship, one must differentiate between narcissists inclined to exhibit themselves and those inclined toward hypersensitivity.

Users with low self-esteem are more likely to have public profiles. This could be a way to increase closeness in relationships and overcome social barriers, particularly for those who feel uncomfortable socializing in face-to-face contexts. This agrees with research finding that users with high self-esteem have a greater intention to control their privacy on SNSs (Ahn et al., 2015; Christofides, Muise, & Desmarais, 2009). Those with high self-esteem feel comfortable sharing in face-to-face contexts (Gaucher et al., 2012), while those with low self-esteem feel more comfortable expressing themselves via SNSs (Forest & Wood, 2012). This preference of low-self-esteem individuals is consistent with previously established preferences for other forms of computer-mediated communication, such as e-mail (Joinson, 2004). Expanding their exposure by using the public settings on SNSs could be a way of maximizing this avenue for self-expression for which users with low self-esteem have a preference.

Moreover, the strength of the relationship between self-esteem and privacy control is considerably stronger on Instagram than Twitter. As Instagram is used for personal

disclosure more than Twitter (Phua et al., 2017) and self-esteem is related to private settings, it stands to reason that individuals with high self-esteem are more likely to restrict access to their profiles on the platform used mostly for personal, revealing disclosures. Conversely, users with low self-esteem see this as a benefit and take advantage of opportunities to gain support and attention afforded by Instagram.

Limitations

The sample is primarily young and female. SNS privacy behaviors differ based on gender and age (Walrave, Vanwesenbeeck, & Heirman, 2012), and women use Instagram more than men (Alhabash & Ma, 2017). However, given the gender imbalance of the sample, the moderating role of gender was not explored. Future research should replicate these findings with samples that are not overwhelmingly female and White to increase generalizability. The privacy control measure is limited to whether posts are public or private and does not account for other factors that potentially affect the reach of users' posts such as audience size (Carpenter, 2012) or posting frequency.

Finally, vulnerable narcissism, a type of narcissism found to explain SNS privacy behaviors (Ahn et al., 2015), was not measured. We have no reason to doubt the veracity of these prior findings—they are supported by theory and methodological soundness. They simply address another aspect of narcissism than the one addressed here. Future research would do well to directly compare vulnerable narcissism and the relevant components of grandiose narcissism in relation to privacy behaviors.

Conclusion

SNSs users' privacy attitudes and behaviors have been described as "paradoxical" (Barnes, 2006) in that users express greater concern over privacy while increasingly disclosing private information. While this may seem accurate when applied in the aggregate, studies of individuals' privacy behaviors (e.g., Utz & Krämer, 2009) find the two to be positively related. A more useful conceptualization is the "trade-off model" of privacy behavior (Utz & Krämer, 2009), where some users value privacy but also other qualities or experiences more highly and are willing to sacrifice privacy to attain them. Utz and Krämer (2009) demonstrate the role of narcissism and perceived norms in this process. To this, we add evidence that individuals low in self-esteem also likely value some aspect of publicness inasmuch that they are willing to forego any perceived benefits of privacy. Though more evidence is needed to support this supposition, it is consistent with the trade-off model.

Privacy behaviors may be tied to relatively stable personality traits, suggesting that even as technologies and social norms change, behaviors that limit the number of people to whom individuals disclose personal information may remain the same. Practitioners would do well to take into account the effect of these traits, as they seek to reshape attitudes and behaviors relating to privacy and social interaction online.

Disclosure statement

No potential conflict of interest was reported by the authors.

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