



Too little power, too much information! Power, narcissism, and adolescents' disclosures on social networking sites



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ARTICLE INFO

Article history:

Available online 10 June 2015

Keywords:

Social network disclosures
Narcissism
Power
Adolescence

ABSTRACT

From a self-image failure perspective, narcissistic adolescents who feel socially disempowered might engage in exhibitionistic disclosures on Social Networking Sites (SNSs). Two studies investigated this hypothesis regarding normative (day-to-day) and problematic (sexuality, drinking) disclosures. In Study 1, cluster analysis revealed four adolescent classes ($N = 471$) with relatively higher/lower narcissism and power. Higher-Narcissism adolescents reported more normative SNS disclosures, but only Higher-Narcissism/Lower-Power youths reported more problematic disclosures. Study 2 adolescents ($N = 56$) received a low- or high-power experimental prime and reported risk perceptions surrounding both disclosure types. Higher-Narcissism youths primed with low power perceived less risk for problematic (but not normative) disclosures. For high-narcissism youths, too little power promotes tendencies to share "too much information" on SNSs.

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1. Introduction

Social Networking Sites (SNSs) have dramatically changed the ways that adolescents share details of their personal lives. Youths use SNSs to routinely upload photos, videos, and text-based updates on their whereabouts and behaviors. Besides these relatively normative disclosures, a sizeable percentage of late-adolescents also disclose drinking, substance use, and/or sexual behaviors on SNSs (e.g., Egan & Moreno, 2011; Karl, Peluchette, & Schlaegel, 2010; Morgan, Snelson, & Elison-Bowers, 2010). These 'problematic' disclosures hold risks for both youth's well-being and educational/career advancement (Swzedo, Mikami, & Allen, 2012; Wilson, Gosling, & Graham, 2012). Beyond understanding the prevalence of such risk behavior, examining psychosocial predictors of adolescents' SNS disclosures can provide guidance for education and intervention efforts.

Youths regard SNSs disclosures to be important for self-expression and relationship maintenance (Baker & White, 2010; Christofides, Muise, & Desmarais, 2009; Medzadeh, 2010). However, adolescents must consider the potential risks of sharing

'too much information'. Among early adults, for example, disclosing deviant activities online predicts later social withdrawal and problematic drinking (Swzedo et al., 2012). School administrators and potential employers also increasingly use SNS profiles as a source of information (Karl et al., 2010), and incriminating content can result in disciplinary actions at school or work (Bohnert & Ross, 2010; Karl & Peluchette, 2011). It is therefore useful to investigate whether youths with certain personality and/or social profiles are more susceptible to problematic SNS disclosures.

Adolescent narcissism appears to be linked with SNS behavior. Narcissism is a dispositional tendency toward grandiose self-views, combined with a high need for external validation (Morf & Rhodewalt, 2001). Narcissistic individuals hold fragile self-perceptions that they maintain through attention-seeking and self-centered behavior (Buss & Chiodo, 1991; Pauletti, Menon, Menon, Tobin, & Perry, 2012), and are more concerned with appearing exciting and popular than they are with interpersonal intimacy (Buffardi & Campbell, 2008; Thomaes, Stegge, Bushman, Olthof, & Denissen, 2008). The ease with which personal information can be shared on SNSs might provide an attractive platform for showcasing narcissistic tendencies (Bergman, Fearington, Davenport, & Bergman, 2011; Panek, Nardis, & Konrath, 2013).

Individuals higher in narcissism have a greater number of connections on SNSs (Buffardi & Campbell, 2008; McKinney, Kelly, & Duran, 2012), spend more time on SNSs (Bibby, 2008; Medzadeh, 2010), and post more status updates and pictures of themselves (McKinney et al., 2012; Ong et al., 2011). It is still

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unclear, however, whether this increased self-promotional behavior extends to problematic disclosures. While narcissistic youths' attention-seeking tendencies might promote greater exhibitionism (e.g., sharing a sexually suggestive profile photo), they might also strictly control their online image to avoid damaging their reputation. Understanding when narcissistic youths might share problematic content can help to mitigate negative outcomes among a group already at risk for social problems.

Narcissistic individuals desire influence over others, and are highly sensitive to fluctuations in their social standing. From a self-image failure perspective (Morf & Rhodewalt, 2001), they might intentionally amplify attention-seeking behaviors in absence of external validation (Carlson, Vazire, & Oltmanns, 2011). Perceptions of social power, broadly defined as "the capacity to influence others" (Anderson & Galinsky, 2006, p. 512), might thus affect narcissists' SNS disclosures. Several prior studies have investigated the link between power and risky behavior. While attaining power might lead to more optimistic risk perceptions and more high-risk behavior (Anderson & Galinsky, 2006; Galinsky, Gruenfeld, & Magee, 2003), additional studies have clarified that this depends on whether individuals are motivated to acquire social power. Maner, Galliot, Butz, and Peruche (2007) showed that having power indeed promoted more risky decision-making, but only among individuals with lower power motivation. Participants with *high* power motivation who were *not* given social power actually engaged in riskier behavior than those afforded power. Powerlessness also increases risk behavior when that lack of power is seen as illegitimate (Lammers, Galinsky, Gordijn, & Otten, 2008). Thus, powerless individuals who desire more influence might have 'nothing to lose' from reckless behavior, while those motivated to hold onto existing power might avoid risk (see Anderson & Galinsky, 2006, and Maner et al., 2007 for similar considerations).

1.1. Overview and hypotheses

Based on prior studies examining power, power motivation, and risk-taking, we hypothesized that high-narcissism youths who perceive a lack of social power might compensate with increasingly exhibitionistic SNS behavior (Buss & Chiodo, 1991). This could pertain to more frequent, relatively mundane disclosures, but also to 'problematic' references to substance use and/or sexual activity. We tested this main hypothesis across two studies, in which we examined whether perceived social power moderates the link between adolescents' narcissism and disclosures on SNSs. By using narcissism as a specific example of dispositional power motivation that is present from childhood (Thomaes et al., 2008), and examining SNS disclosures as behavior that can foster real-world difficulties, our research elaborates upon power-risk processes that have previously only been demonstrated in artificial laboratory settings. In examining the predictors of youths' more excessive SNS disclosures, we focused on both self-reported SNS disclosure frequency (Study 1) and youths' conscious perceptions of risk regarding such behavior (Study 2). As other studies have found both gender and age differences in SNS disclosures (e.g., Egan & Moreno, 2011; Karl et al., 2010; Medizadeh, 2010; Peluchette & Karl, 2008; Valkenburg, Sumter, & Peter, 2010), we additionally explored or controlled for these variables.

We also aimed to extend general knowledge about adolescents' SNS disclosures in several important ways. First, few studies have explicitly compared disclosures of relatively mundane experiences with the rarer (but potentially more damaging) disclosures about substance use and sexual activity (but see Christofides et al., 2009; Karl et al., 2010; Peluchette & Karl, 2008). Such distinctions are important, as SNS references to substance use or sexuality shape perceptions of related norms (e.g., Moreno, Briner,

Williams, Walker, & Christakis, 2009) that can subsequently affect youths' behavior (Litt & Stock, 2011; Young & Jordan, 2013). We examined both types of SNS disclosure in this research, in order to further compare their relative frequencies and to examine whether the same psychological processes might underlie the two behaviors.

Second, most research on problematic SNS disclosures has been conducted with young adult/college samples (e.g., Christofides et al., 2009; DeWall, Buffardi, Bonser, & Campbell, 2011; Egan & Moreno, 2011; Karl et al., 2010; Peluchette & Karl, 2008). Prior studies disagree as to whether problematic SNS disclosures correlate with age negatively (Karl et al., 2010) or positively (Egan & Moreno, 2011). However, the same disclosures could be riskier for younger adolescents (Christofides, Muise, & Desmarais, 2012). We therefore utilized pre-college samples.

Third, studies on SNS disclosures have typically utilized variable-centered, correlational designs that do not consider distinct subgroups of adolescents. Variable-centered research might mask specific classes of youths who differ meaningfully in both psychosocial profiles and SNS behavior (von Eye & Bogat, 2006). For example, although narcissists are generally seen as holding inflated perceptions of their social influence, generalizing this assumption to all individuals would imply that narcissists are ignorant of how their behaviors further their social difficulties. If narcissists notice the fluctuations in their social relationships (Carlson et al., 2011), however, this could indicate that there are actually groups of narcissistic individuals who see themselves as being more or less powerful, respectively. It is also somewhat unclear just what it means for narcissists to hold 'reduced' perceptions of their social influence, and how severe these reductions must be to promote more extreme behavior. Examining theoretical extremes of ordinal scales (e.g., ± 1 SD) provides only minimal understanding of these issues. Conversely, investigating natural groupings of adolescents offers novel information regarding heterogeneity in power perceptions among narcissistic youths, as well as the boundary conditions under which reduced perceptions of power might promote problematic behavior. We therefore used person-centered methods in Study 1, which allowed for consideration of how naturally-occurring groups might differ in their SNS disclosures.

Finally, researchers examining both narcissistic SNS exhibitionism (Bergman et al., 2011) and adolescents' online risk behaviors (Baumgartner, Valkenburg, & Peter, 2010) have pleaded for experiments supporting existing correlational and longitudinal studies. Doing so provides greater confidence when targeting particular factors in education and intervention. We therefore employed an experimental manipulation of power in Study 2, to provide causal evidence of how experiences of power(lessness) affect youths with differing levels of narcissism.

2. Study 1

Study 1 utilized a cluster analysis in order to investigate whether youths with specific profiles of narcissism and social power report different frequencies of normative and problematic SNS disclosures. We expected to observe classes of adolescents characterized by different combinations of relatively higher and lower narcissism and social power. By creating such groups, we gained the ability to compare both types of SNS disclosure in a repeated-measures mixed analysis, as opposed to conducting linear regressions on each dependent variable, separately. Our main hypothesis for this study was that adolescents characterized by a High-Narcissism/Low-Power profile would report the most frequent SNS disclosures. As prior literature has also suggested possible differences in disclosure behavior between different SNSs (Fogel & Nehmad, 2009; Panek et al., 2013), we additionally controlled for this factor in the analysis.

2.1. Method

2.1.1. Participants

Data for Study 1 were collected by Qrius Research, Amsterdam. Qrius Research is an institute that specializes in research among youth and conducts large off- and online surveys pertaining to adolescent media use, product knowledge, and social and political attitudes. Respondents are panel members who are approached several times per year to participate in surveys. Generally a small fee is paid to do so. Invitations to become panel members are distributed through different web sources in order to reach different types of young people, enabling the institute to create a large, representative participant database, from which selections can be made for different research purposes.

Respondents were 471 adolescents in the Netherlands (55% girls) between the ages of 12 and 18 ($M = 14.75$, $SD = 1.84$), meeting our inclusion criterion of having at least 10 contacts ('friends') on their most-used SNS. Of these respondents, 31% were enrolled in technical/vocational education, 55% were enrolled in pre-university education, and 14% were enrolled in a combined educational track. The majority (78%) came from two-parent households. Most youths (97%) were born in the Netherlands, and reported both mothers (93%) and fathers (91%) being native Dutch. Fewer indicated that mothers (7%) and/or fathers (9%) came from Surinamese, Turkish, Moroccan, or Indonesian ancestry. While our sample differentiates well between young people with different demographic backgrounds, there is a slight overrepresentation of girls, higher educated youth, and non-ethnic youth in comparison to the general population of Dutch adolescents.

2.1.2. Procedure

Participants were recruited through a commercial online testing center to take part in a study on relationships and SNS behavior. Both youths and at least one parent provided informed consent. Youths responded at home, via computer.

2.1.3. Measures

2.1.3.1. Narcissism. Trait narcissism was assessed with the Childhood Narcissism Scale (Thomaes et al., 2008). This is a 10-item measure (e.g., 'I find it important to stand out'; 'Luckily, I'm a very unusual and special person'), scored on a 4-point scale (1 = *absolutely not true*; 4 = *very true*). Reliability was good ($\alpha = .85$).

2.1.3.2. Social power. Perceptions of social power were assessed with the general Sense of Power scale (Anderson & Galinsky, 2006). This 8-item measure (e.g., 'I can get others to do what I want'; 'I think I have a great deal of power') was scored on a 5-point scale (1 = *completely disagree*, 5 = *completely agree*). Reliability was acceptable ($\alpha = .72$).

2.1.3.3. Most-used SNS. One forced-choice item indexed the SNS that respondents used most often. Participants chose between Facebook (25%), Hyves (the Dutch equivalent of MySpace; 26%), MSN (29%), and Twitter (20%). We also included as an open-ended 'Other' option on this question, but this was not selected by any of the participants and will not be discussed further.

2.1.3.4. SNS disclosure frequency. We created a 10-item scale to assess frequency of disclosures on youths' most frequently used SNS. Six items assessed *normative disclosure frequency*, pertaining to day-to-day events and experiences ('How often do you post on your [most-used SNS] profile page... Your opinions; Information about important experiences in your life; Your feelings; Information (also photos or films) about where you are, and with whom; Information (also photos or films) about your relationship and/or group of friends; Photos or films about your hobbies and

interests'). An additional four items assessed *problematic disclosure frequency*, regarding rule-breaking and risk behavior (... 'Photos or films where you use alcohol or drugs; Photos or films where your friends are using alcohol or drugs; Photos or films of your sexual behavior; Photos or films about your friends' sexual behavior). All items were scored on a 5-point scale (1 = *never*, 5 = *very often*). An exploratory principle axis factor analysis with Oblimin rotation showed a two-factor solution explaining 61.74% of the variance. All items loaded between .47 and .94 on their primary factor, with all cross-loadings on the second factor < .08. Reliabilities were excellent for both normative disclosure ($\alpha = .85$) and problematic disclosure ($\alpha = .93$). The two scales showed a medium-sized correlation ($r = .47$, $p < .001$).

2.2. Results

2.2.1. Creating narcissism–power clusters

In order to test our hypotheses, we first sought to assign participants to groups differing in their relative amounts of narcissism and social power (e.g., High-Narcissism/Low-Power, Low-Narcissism/Low-Power, High-Narcissism/High-Power, and Low-Narcissism/High-Power). To this end, we conducted a cluster analysis simultaneously on the Narcissism and Power scales. Mean scores on these measures were transformed into Z-scores. The initial, untransformed means for power and narcissism showed a modest but significant correlation, $r = .23$, $p < .001$.

We used a two-step clustering method (Gore, 2000). First, we examined a hierarchical cluster model using Wards' method on squared Euclidian distances. This allowed us to compare several solutions, each of which contained a different number of clusters. Each of these solutions was evaluated on the basis of three criteria: (1) whether the cluster was theoretically meaningful, (2) the parsimony of the solution, and (3) explanatory power, with a minimum requirement of 50% explained variance in power and narcissism scores. Based on these criteria, we opted for a four-cluster solution. Second, we used these initial cluster centers as non-random starting points in an iterative *k*-means clustering procedure.

We examined whether our cluster solution could be replicated by randomly dividing the participants into two subsamples. We found the same orthogonal pattern for each subsample, and the degree of correspondence to participants' original (total group) assignments was acceptable (Cohen's kappa = .73 and .87, respectively). We therefore used the cluster assignments based on the total sample.

2.2.2. Describing narcissism–power clusters

Table 1 displays the scores for power and narcissism for each of the four clusters (see also Fig. 1). The first cluster consisted of above-average scores on narcissism and slightly below-average scores on power ($n = 143$, 30.36%), heretofore referred to as the *High-Narcissism/Low-Power* group. The second cluster was comprised of above-average scores on both narcissism and power (*High-Narcissism/High-Power*; $n = 111$, 23.57%). A third cluster contained below-average scores on both narcissism and power (*Low-Narcissism/Low-Power*; $n = 126$, 26.75%). The final cluster consisted of below-average scores on narcissism and above-average scores on power (*Low-Narcissism/High-Power*; $n = 91$, 19.32%). Thus, we achieved a relatively clear, theoretically meaningful orthogonal contrast between narcissism and power. The power scores in the first and fourth clusters showed relatively modest differences below and above the total sample standardized mean, respectively. We use the terms 'high' and 'low' for these groups in a relative sense, for the sake of simplicity. Multivariate analyses of variance (MANOVA) with Tukey post hoc tests on the Z-scores of narcissism and power showed that the four-cluster solution

Table 1
Raw means and standard deviations, per Narcissism/Power cluster (Study 1).

	High-Narcissism/ Low-Power (n = 143)		High-Narcissism/ High-Power (n = 111)		Low-Narcissism/ Low-Power (n = 126)		Low-Narcissism/ High-Power (n = 91)	
	M	SD	M	SD	M	SD	M	SD
Narcissism	2.65 ^a	.34	2.49 ^b	.34	2.04 ^c	.26	1.62 ^d	.36
Social power	3.09 ^a	.23	3.87 ^b	.27	2.74 ^c	.34	3.26 ^d	.27
Normative SNS disclosure frequency	2.49 ^a	.83	2.49 ^a	.80	2.01 ^b	.76	1.95 ^b	.80
Problematic SNS disclosure frequency	1.63 ^a	1.00	1.11 ^b	.20	1.13 ^b	.37	1.14 ^b	.48

Note. Different alphabetical superscripts within the same row indicate differences at $p < .001$.

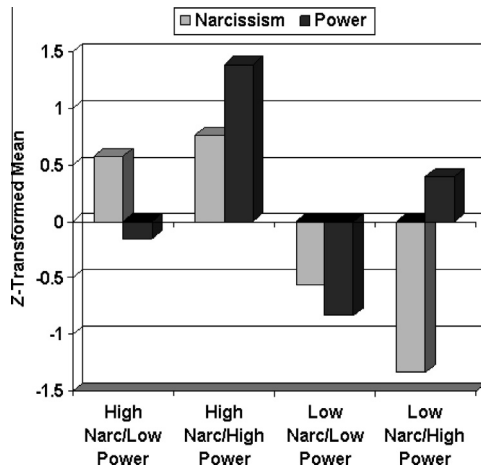


Fig. 1. Z-transformed scores of adolescents' narcissism and social power, per cluster.

explained 59.2% of the variance in narcissism and 68.5% of the variance in power.

2.2.3. Cluster differences in SNS disclosures

Means and standard deviations for normative disclosures and problem disclosures, per cluster, can be seen in Table 1. To test for differences in frequency between types of disclosure, and whether each type differed between the power-narcissism clusters, we utilized a 4 (cluster, between) \times 2 (disclosure type, within) \times 2 (gender, between) mixed design. Given the rather broad age range in our sample, we added youths' age as a covariate in the analysis. Since different SNS enact different policies regarding privacy control and censorship of inappropriate material, and because youths answered questions about disclosure frequency with regard to their most frequently used SNS, we also added this as a categorical covariate.

Multivariate tests indicated a significant main effect of disclosure type, $F(1,461) = 5.03$, $p = .03$, $\eta_p^2 = .01$. Normative disclosures ($M = 2.27$, $SD = .83$) were more frequent than problem disclosures ($M = 1.28$, $SD = .67$). The analysis also showed a main effect of gender, $F(1,461) = 9.07$, $p = .003$, $\eta_p^2 = .02$. Girls ($M = 1.82$, $SD = .04$) generally reported more frequent disclosure than boys ($M = 1.65$, $SD = .04$). We also found an unexpected Gender \times Disclosure type interaction, $F(1,461) = 28.08$, $p < .001$, $\eta_p^2 = .06$. Girls ($M = 2.40$, $SD = .81$) reported more frequent normative disclosure than boys ($M = 2.10$, $SD = .82$; $p < .001$), but not more problematic disclosures ($M = 1.24$, $SD = .58$ and $M = 1.31$, $SD = .77$, respectively; $p = .79$).

The age covariate was significant, $F(1,461) = 18.58$, $p < .001$, $\eta_p^2 = .04$, with more frequent disclosure occurring among older youths. The type of disclosure did not interact with age, $F(1,461) = .12$, $p = .74$, $\eta_p^2 = .00$. No main effect was present for

the SNS covariate, $F(1,461) = .84$, $p = .36$, $\eta_p^2 = .00$, but this covariate did interact with disclosure type, $F(1,461) = 6.46$, $p = .01$, $\eta_p^2 = .01$. Examination of the separate results for each SNS showed that, although there were differences between SNSs in the two types of disclosures, the High-Narcissism/Low-Power individuals always held the highest mean scores on both general disclosure frequency (main effect) and problematic disclosure, specifically. Further details of these results are available from the authors upon request.

A significant main effect was also found between the Narcissism-Power clusters, $F(3,462) = 22.20$, $p < .001$, $\eta_p^2 = .13$. Across disclosure types, High-Narcissism/Low-Power youths ($M = 2.14$, $SD = .83$) generally reported more frequent disclosure than any other group, followed by the High-Narcissism/High-Power group ($M = 1.94$, $SD = .50$), the Low-Narcissism/Low-Power group ($M = 1.70$, $SD = .50$), and the Low-Narcissism/High-Power group ($M = 1.62$, $SD = .59$), respectively. Follow-up tests showed that the High-Narcissism/Low-Power group disclosed more frequently than any other group ($p < .001$), and the High-Narcissism/High-Power group tended to disclose at frequencies similar to the Low-Narcissism/Low-Power group ($p = .06$) but more than the Low-Narcissism/High-Power group ($p = .007$). The two Low-Narcissism groups did not differ ($p = .34$). No other main effects existed.

Most importantly for our predictions, we found a Cluster \times Disclosure type interaction, $F(3, 461) = 11.35$, $p < .001$, $\eta_p^2 = .07$ (see Fig. 2). Post-hoc tests showed that the two High-Narcissism groups reported similar amounts of normative disclosure ($p = .25$), and both reported more normative disclosure than the two Low-Narcissism groups (both p 's $< .001$). The two

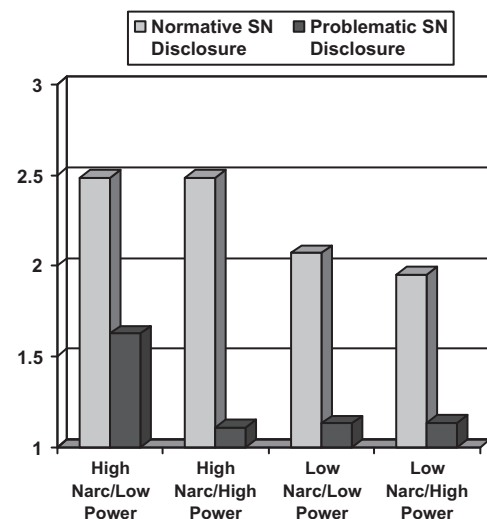


Fig. 2. Frequency of normative and problematic SNS disclosures, per Narcissism/Power cluster.

Low-Narcissism groups did not differ in normative disclosure ($p = .16$). In contrast, and supporting our hypothesis, the High-Narcissism/Low-Power group reported significantly more frequent problematic disclosure than any other group (all p 's < .001), with the remaining three groups showing no differences (all p 's < .50).

2.3. Study 1 discussion

The results of Study 1 supported our predictions. A person-centered approach identified adolescent groups characterized by fairly orthogonal combinations of narcissism and social power. Higher levels of narcissism were linked with more frequent normative SNS disclosures, regardless of power scores. For problematic SNS disclosures, however, adolescents in the High-Narcissism/Low-Power class reported more frequent disclosure than all other groups, with the remaining three clusters showing no differences. These results are in line with a self-image failure perspective on narcissism (Morf & Rhodewalt, 2001); as we expected, higher-narcissism youths not only engage in more self-promotional SNS behavior, generally speaking, but also amplify their exhibitionism when they perceive less social power than they desire.

These results suggest that the direct link between narcissism and SNS activity widely found in prior studies only holds for certain (normative) types of self-disclosure, whereas other (problematic) forms of information sharing are linked to an interaction between this personality characteristic and the adolescents' social environment. Our use of youths' self-reports of SNS behavior permitted the collection of a large sample from which reliable classes could be constructed; this allowed for a novel comparison of the separability of narcissism and social power perceptions (cf. Carlson et al., 2011). A variable-centered approach would have suggested that adolescents higher in narcissism generally hold grandiose views of their social influence (as indicated by the positive correlation between these scores and an above-average power score had the two high-narcissism groups been combined). In contrast, our person-centered approach indicated that a sizable proportion of higher-narcissism adolescents saw themselves as merely 'ordinary' in this respect, and these lower power perceptions were linked to more problematic SNS disclosures.

One major shortfall of the present study concerns an inability to establish lack of power as a causal mechanism linking youths' narcissism and SNS disclosures. An alternative explanation could be that sharing problematic information on SNSs results in a diminishing of youths' social influence. We therefore conducted a second study in which social power was manipulated experimentally.

In this experiment, we also aimed to counter the possibility that High-Narcissism/Low-Power youths showed more problematic SNS disclosures because they actually engage in sexual activity and substance use more frequently. Clearly, only youths who engage in such behavior could also disclose it on SNSs later on. An experimental manipulation of power would not change pre-existing behavior, however, nor would it be ethical to experimentally increase problematic disclosures on actual SNS profiles. We instead measured youths' assessments of risk around such behavior, reasoning that these could be altered regardless of actual prior SNS activity.

3. Study 2

We hypothesized that an experimental manipulation of social power would produce differential inclinations toward SNS disclosure for lower- and higher-narcissism adolescents. We examined perceptions of disclosure risks in order to investigate whether differences in social power actually precipitate greater levels of SNS

disclosure. Predominant theories of privacy management and disclosure view related behavior as the product of a conscious risk analysis (e.g., Petronio, 2002), and adolescents' expectations of negative outcomes have been linked to reduced information-sharing in earlier studies (Christofides et al., 2012; Youn, 2009). Further, prior studies have shown that optimistic risk perceptions mediate links between power and risky behavior (Anderson & Galinsky, 2006). Based on the findings of Study 1, we hypothesized that higher-narcissism youths would report lower risk perceptions around SNS disclosures after receiving a low-power manipulation, as compared to a high-power manipulation. While we considered this interaction especially likely for problematic SNS disclosures, we again examined both normative and problematic disclosures in order to inform research on general versus specific disclosure correlates.

3.1. Method

3.1.1. Participants

Respondents were 73 adolescents between the ages of 13 and 16 who were active users of social networking websites. All respondents were enrolled in pre-university education and were born in the Netherlands. Youths were recruited from two public high schools in middle and southern provinces of the Netherlands. From this total sample, 16 youths did not satisfactorily complete the experimental priming task (see below), either by leaving the page entirely blank or reporting that they could not think of a relevant situation. One additional participant did not complete all self-report measures relevant to the analyses. These inclusion criteria reduced the sample to 56 adolescents (59% girls), who were 14.55 years old, on average ($SD = .60$). The majority of youths reported both their mother (79%) and father (89%) as being native Dutch. Other family backgrounds included Surinamese, Moroccan, Turkish, or Indonesian. Most youths (79%) lived with both of their parents.

3.1.2. Procedure

Upon obtaining consent from the school administration and parents, youths completed a pencil and paper survey on relationships and social networks in their homeroom classes. Students were assured confidentiality and that they could withdraw their participation at any point. No students refused participation.

After first completing the measure of narcissism, participants received one of two social power primes. Participants were randomly assigned to either a high-power condition ($n = 29$) or a low-power condition ($n = 27$). We utilized the experiential recall priming task developed by Galinsky et al. (2003), in which youths were either asked to recall a particular incident in which they had power over others or in which someone else had power over them. They were asked to write a short paragraph describing the situation, what happened, and how they felt. Participants completed these priming essays on a separate sheet of paper. Following this, they completed the risk assessment measure that comprised the main dependent variables of interest. Participants were then fully debriefed and provided with supplementary information regarding risks associated with sharing personal information on SNSs.

3.1.3. Measures

3.1.3.1. Narcissism. Respondents' trait narcissism was again measured with the 10-item Childhood Narcissism Scale (Thomaes et al., 2008; $\alpha = .66$), scored on a 4-point scale (1 = *absolutely not true of me*; 4 = *very true of me*).

3.1.3.2. Risk perceptions of SNS disclosure. We modified the behavioral scales utilized in Study 1 to assess risk perception instead of actual behavior. Specifically, students were asked to give their

perceptions of risk (in terms of, e.g., potential damage to their reputation, problems with parents/work/school, or identity theft) associated with sharing certain kinds of information on their social network profiles. The same six items as in Study 1 assessed *normative disclosure risk* ($\alpha = .73$), and the same four items assessed *problematic disclosure risk* ($\alpha = .83$). All items were scored on a 5-point Likert scale (1 = *not at all risky*, 5 = *very risky*). Thus, higher scores indexed higher perceptions of risk.

3.2. Results

Means and standard deviations for narcissism, normative disclosure risk, and problem disclosure risk are shown in Table 2. To test for effects of our power manipulation and the ordinal measure of narcissism upon the two types of risk assessment, we utilized multiple linear regressions including the control variables age and gender, mean scores of narcissism and the power manipulation (dummy-coded as 0 = low-power, 1 = high-power), and the Power \times Narcissism interaction. We conducted separate regressions for the two types of risk perception. All ordinal and continuous predictors were standardized with a Z-transformation prior to analyses.

3.2.1. Power manipulation check

In order to examine the effectiveness of the power manipulation, two independent raters who were blind to both condition and hypotheses scored participants' essays on a seven-point scale (1 = *very little power*, 7 = *a lot of power*). Because the two raters' scores were highly correlated ($r(56) = .92$, $p < .001$), they were combined into an average score. Examining these means within each condition revealed that the High-Power group ($M = 4.88$, $SD = 1.18$) received significantly higher power scores on their essays than the Low-Power group ($M = 2.64$, $SD = 1.03$), $F(1, 54) = 56.75$, $p < .001$, suggesting that the manipulation had the intended effect.

3.2.2. Risk perceptions of normative SNS disclosure

The regression model examining risk perceptions around normative SNS disclosures explained 14% of the variance, but was not significant ($F(5, 55) = 1.56$, $p = .19$). Age ($\beta = .22$, $p = .10$), gender ($\beta = .20$, $p = .15$), narcissism ($\beta = -.29$, $p = .18$), the power manipulation ($\beta = .16$, $p = .27$), or the power \times narcissism interaction ($\beta = .31$, $p = .15$) did not predict perceptions of risk regarding normative SN disclosures.

3.2.3. Risk perceptions of problematic SNS disclosure

The regression model examining risk perceptions around problematic SNS disclosures explained 21% of the variance ($F(5, 55) = 2.67$, $p = .03$). First, a negative main effect of narcissism was present ($\beta = -.55$; $p = .01$), suggesting that youths higher in narcissism perceived less risk around normative disclosures. A trend existed for gender ($\beta = .25$; $p = .06$), by which girls tended to perceive higher risk around problematic disclosures. No main effects were found for age ($\beta = .12$, $p = .34$), or the power

manipulation ($\beta = .07$; $p = .59$). Most importantly for our predictions, the Power \times Narcissism interaction was significant ($\beta = .48$, $p = .02$).

To disentangle the Power \times Narcissism interaction, we conducted two follow-up tests (cf. Maner et al., 2007). First, the relation between narcissism and risk perception was different for the high- and low-power groups. Within the high-power condition, there was no significant link between youths' narcissism scores and their risk perception, $r(29) = .05$, $p = .82$. Within the low-power condition, however, narcissism scores showed a negative link with risk perception, $r(27) = -.46$, $p = .02$. Thus, our hypothesis was supported; within the low-power condition, higher narcissism scores were linked with lower risk perceptions around problematic SNS disclosure.

Second, a simple slopes analysis (Aiken & West, 1991) clarified the effects of power on participants relatively higher (+1 SD) versus lower (-1 SD) in narcissism (see Fig. 3). For low-narcissism youths, a negative but nonsignificant effect existed, in which those in the low power condition had higher risk perception scores than those in the high power condition ($\beta = -.26$, $p = .17$). For high-narcissism youths, however, those in the low power condition reported significantly lower risk perception than those in the high power condition ($\beta = .40$, $p = .04$). Thus, the effects of power differed between low- and high-narcissism respondents, in line with our hypothesis; youths lower in narcissism participants did not show differential responses in the two power conditions, but youths higher in narcissism perceived significantly less risk when primed with low power than when primed with high power.

3.3. Study 2 Discussion

Study 2 provided experimental evidence supporting our hypothesis. Largely replicating the results of Study 1, youths scoring higher in dispositional narcissism who were asked to recall and experience of low social power perceived less risk around problematic SNS disclosures than did those who were exposed to a high-power recall prime. The same effect was not found when considering more normative SNS disclosures. Additionally, youths scoring lower in narcissism did not show changes in either type of risk perception as a result of the power manipulations. These results indicate a causal role for power in the previously established link between narcissism and problematic SNS activity, with perceptions of low social power apparently inclining narcissistic youths toward more online exhibitionism.

Table 2

Means and standard deviations, per Power condition (Study 2).

	Low Power (<i>n</i> = 27)		High Power (<i>n</i> = 29)		Total (<i>N</i> = 56)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	14.56	.58	14.55	.63	14.55	.60
Narcissism	2.16	.34	2.39	.38	2.28	.38
Normative disclosure risk	3.02	.80	3.20	.64	3.11	.72
Problematic disclosure risk	4.36	.89	4.36	.60	4.36	.75

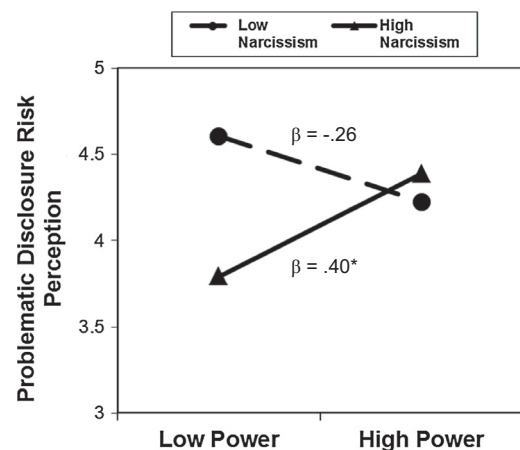


Fig. 3. Adolescent's risk perceptions around problematic SNS disclosures as a product of dispositional narcissism and the experimental power manipulation. * $p < .05$.

4. General discussion

The widespread popularity of SNSs has prompted concern over what kinds of information adolescents are disclosing online. On the one hand, sharing personal information on SNSs promotes relationship formation and maintenance (Baker & Oswald, 2010; Reich, Subrahmanyam, & Espinoza, 2012; Valkenburg et al., 2010; Wilson et al., 2012). On the other hand, disclosures of health-risk or sexual behavior might create problems in relationships, school, or employment opportunities. Understanding which youths are likely to engage in more frequent and inappropriate SNS disclosures, and under what conditions this occurs, is an important step in assisting adolescents with their long-term social, academic, and employment prospects.

The present research is one of the few to examine psychosocial predictors of both normative and problematic SNS disclosures among pre-university adolescents. Using both person-centered (Study 1) and experimental (Study 2) approaches, we found support for our hypothesis that a combination of higher narcissism and lower perceived social power is related to increased references to drinking, substance use, and sexual behavior on youths' SNS profiles. This suggests that youths higher in narcissism are prone to engage in more frequent and severe SNS exhibitionism when their social realities conflict with their desires for power over others.

Our findings also support prior research qualifying the positive link between power and risky behavior (Maner et al., 2007). Narcissistic youths' stronger desires for attention and admiration are accompanied by constant searches for reassurance, suggesting that they are "especially vigilant to the potential loss of power" (Maner et al., 2007, p. 453). This heightened vigilance was reflected in our results. In Study 1, our cluster-analytical approach revealed that the High-Narcissism/Low-Power class reported perceptions of power that were on par with mean levels for the sample as a whole (but substantially lower than for the High-Narcissism/High-Power group). At the same time, this self-view of 'ordinariness' was associated with higher levels of problematic SNS disclosure. In Study 2, the effects of a fairly modest power manipulation upon risk assessments were substantially stronger for higher-narcissism youths than for lower-narcissism youths. Our research on SNS disclosure thus provides a specific contextual example of narcissistic youths' oversensitivity to relatively modest fluctuations in perceived power (Carlson et al., 2011; Pauletti et al., 2012). If needs for validation are being met (i.e., they feel powerful), narcissistic adolescents may be more careful to avoid incriminating disclosures. When they see themselves as less powerful, however, their need for attention may lead them to view SNSs as a convenient venue for enacting exhibitionistic coping strategies, and to feel that they have relatively little to lose by doing so.

The impact of social power on conscious risk assessments in Study 2 fits with a self-image failure perspective on narcissism (Morf & Rhodewalt, 2001), which suggests that narcissistic youths might react to decreases in social standing with calculated (but misguided) efforts to appear more interesting, exciting, and popular (e.g., Buffardi & Campbell, 2008; Carlson et al., 2011; Panek et al., 2013). A link between conscious risk assessments and disclosure is also in line with prevailing perspectives on privacy (e.g., Petronio, 2002). Notably, adolescents in both studies generally reported low frequencies/high risk assessments of problematic disclosures. This was less the case for normative disclosures, however, which were more frequent both for girls and for the two high-narcissism classes in Study 1. Interestingly, neither narcissism nor power predicted risk perceptions around normative disclosures in Study 2. Although the nonsignificant main effect of narcissism was in the logical direction, the relatively smaller sample size compared to Study 1 might have prevented finding the

expected pattern for risk assessments concerning a fairly mundane and prevalent set of behaviors.

The greater frequency of normative SNS disclosures among higher-narcissism adolescents might be predominantly guided by other conscious processes, such as anticipated benefits (e.g., Child, Pearson, & Petronio, 2009; Petronio, 2002), or conformity to perceived descriptive and injunctive norms based on peer behavior (e.g., Baumgartner, Valkenburg, & Peter, 2011), both of which should be considered more thoroughly in future research. While the risks of referencing sexual and health-risk behaviors might be more obvious, and thus more strongly impact related levels of disclosure, sharing strong opinions, emotions, or self-photos on SNS can also lead to decreased social appeal if other users deem such activity to be excessive or irritating (Christofides et al., 2012; Houghton, Joinson, Caldwell, & Marder, 2013). Greater efforts should be made in research and interventions to explore these kinds of potentially noxious behaviors, and the risks they might pose to youths' online and offline relationships.

4.1. Implications

Research and youth health advocates have repeatedly signaled the need for programs addressing adolescents' online information-sharing, although this call has not yet led to consistently implemented and empirically-based interventions (see Livingstone, 2008; Safer Internet Programme, 2009, and Vanderhoven, Schellens, & Valcke, 2013, 2014, for extensive discussion of these issues). To the extent that such efforts exist, much attention has been given to informing adolescents about how to use privacy settings on various SNS platforms. However, it is unclear whether educating adolescents about the use of privacy settings is an effective strategy for youths who use online disclosures to garner attention and communicate their appeal to a broad network of "loose contacts" on SNSs. It is therefore essential for such technical training to be supplemented by approaches that acknowledge the psychological and emotion-related components of related behavior (Safer Internet Programme, 2009). While education programs that generally aim to highlight risks surrounding problematic SNS profile content might be successful in raising adolescents' awareness of such issues (Vanderhoven et al., 2013), achieving change at the attitudinal and behavioral levels appears to be more challenging (e.g., Moreno et al., 2009; Vanderhoven et al., 2014). Others have suggested that it is crucial for education programs to consider individual differences in order to be successful (Marwick, Diaz, & Palfrey, 2010). The findings of the present research might help to further increase the efficacy of such efforts, by identifying a subpopulation of youths who are in greater need of attitudinal and behavioral change. Techniques that have been effective in reducing other negative behaviors displayed by adolescents with narcissistic tendencies might be incorporated into these programs. For example, interventions that buttress youths' self-esteem have proven highly effective in reducing narcissistic aggression (Thomaes, Bushman, Orobio de Castro, Cohen, & Denissen, 2009). Based on our results, similar programs might also prove useful in minimizing adolescents' SNS exhibitionism.

Our results also suggest that parents or educators discussing responsible online behavior might consider addressing narcissistic youths' responses to a perceived lack of social power, and how such experiences might elevate attention-seeking and status-enhancement motives to engage in problematic SNS disclosures. If these adolescents are indeed sharing information about sexual and/or substance-use behaviors in an effort to cultivate a more exciting and appealing online image (e.g., Bergman et al., 2011; Panek et al., 2013), emphasizing that many of their peers actually have negative views about sharing these activities online (e.g., Morgan et al., 2010) might diminish such misconceptions.

Programs aiming to reduce problematic SNS disclosures or negative consequences of excessive SNS profile updating could consider including peer group discussions that help to counter distorted perceptions about the desirability of various disclosures (cf. Baumgartner et al., 2010; Litt & Stock, 2011; Young & Jordan, 2013). It might be that hearing which behaviors adolescents' own peers consider inappropriate could encourage them to think twice before sharing 'too much information'.

4.2. Limitations and future directions

The present research holds several strengths and novel contributions, including the use of both person-centered and experimental methods, explicitly examining different forms of disclosure, and using pre-college adolescent samples. There are also limits to our investigation that might offer fruitful avenues for further testing.

First, the applicability and brevity benefits of the Childhood Narcissism Scale are countered by the fact that it does not distinguish between the overt/grandiose and covert/vulnerable narcissism subtypes proposed in earlier research (e.g., Dickinson & Pincus, 2003; Rose, 2002; Wink, 1991). The presence of both high- and low-power groups among those scoring higher in narcissism would seem to reflect such subclasses, and those arguing in favor of narcissism subclasses might find SNS disclosures an interesting context for examining these distinctions. However, studies of nonclinical youth narcissism often examine general narcissism scores (e.g., Pauletti et al., 2012; Thomaes et al., 2008), as do studies of narcissism and SNS behavior (e.g., Bergman et al., 2011; Buffardi & Campbell, 2008; McKinney et al., 2012). Perhaps more importantly, our experimental results in Study 2 suggest that differences in problematic SNS behaviors do not merely reflect stable, pervasive overt/covert subtypes; instead, narcissistic youths might fluctuate in their levels of problematic SNS disclosure under changing power conditions.

Second, more sensitive measures of our dependent variables in both studies could shed light on important subtleties in adolescents' behaviors and cognitions. As mentioned previously, future research could gather objective data through content analyses of participants' actual SNS profiles, as opposed to relying on self-reported behavior on ordinal scales. Several observational studies of SNS activity already exist, though structural differences between SNSs typically lead to varying amounts of behavior sampling and a research concentration on users of only one platform. Additionally, the measurement of risk in Study 2 was somewhat vague, in that we asked for participants to provide a general assessment across several domains (e.g., relationships, school, and work). Differentiating between particular risk domains might assist in tailoring interventions designed to affect youths' online behavior.

Third, the precise nature of the power effect that we observed is somewhat unclear. In Study 1, our cluster analyses was appropriate only for differentiating between relatively higher and lower levels of power. Our fairly small sample size in Study 2 prevented the inclusion of a control group. Thus, it is unclear whether *losing* power results in narcissists' increased SNS exhibitionism, or whether this represents a baseline state that is ameliorated as power perceptions increase. Although the research suggests that, in either case, narcissistic youths with perceptions of low power should be a main target for intervention, it is important for future studies to determine whether one or both of these power conditions promote changes in adolescents' online information sharing.

Finally, other mechanisms might at least partially account for why power qualified the narcissism-disclosure link. The self-image failure perspective on narcissism views exhibitionistic behaviors as purposeful, but misguided, efforts to manage or improve one's social image (Morf & Rhodewalt, 2001). Other, more automatic processes might also be at play, however. In contrast to

deliberating pros and cons, youths' SNS disclosures might also be impulsive behaviors that receive very little conscious consideration, especially for adolescents who rely on external validation for regulating their emotions and behavior (Vazire & Funder, 2006). In other words, narcissistic, powerless youths may experience reduced self-control that leads them to neglect a consideration of the risks around SNS disclosures. This might be especially the case for normative disclosures, in which most youths engage to some degree, and could explain the lack of significant effects found in Study 2. Recent studies of various social and risk behaviors have considered dual process models incorporating both automatic and reflective components (e.g., Hofmann, Friese, & Wiers, 2008; Strack & Deutsch, 2004; Van Gelder, De Vries, & Van der Pligt, 2009). Examining such a dual process model and its determinants represents a crucial next step for SNS disclosure research, which can help to align this topic with the extensive research conducted in other risk domains. Assessing the extent to which problematic SNS disclosures represent considered versus impulsive behaviors is a crucial step for designing effective education and intervention programs for adolescents.

5. Conclusions

Adolescents scoring higher in narcissism appear to be prone to engaging in different levels of problematic SNS disclosure, depending on whether they possess or lack social power. Specifically, high-narcissism youths with lower perceptions of social power may regard problematic SNS disclosures as less risky, and share such information online more often. Our person-centered and experimental research can provide useful information for educational programs addressing SNS disclosures. This is particularly the case with regard to which adolescents should be targeted for intervention, and possible mechanisms to address when attempting to promote responsible online behavior.

Acknowledgements

We thank Dr. Elisabetta Crocetti of Utrecht University for assistance with the person-centered analyses reported in Study 1.

Rachel den Brabander, Merel de Jong, Nikita Krouwel, and Sharissa Trommel served as research assistants for Study 2.

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