Brief Report

The effects of vulnerable and grandiose narcissism on liking-based and disliking-based centrality in social networks

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ABSTRACT

The objective of this study was to test the effects of two types of narcissism on popularity in peer networks. Using data from four groups of well-acquainted students ($N = 122$), we investigated differential relations of grandiose and vulnerable narcissism with network centrality indicators of liking and disliking. Grandiose narcissists received a larger number of disliking nominations, indicating that they were actively disliked by their peers. In contrast, vulnerable narcissists were not actively disliked, but instead received fewer liking nominations. Both grandiose and vulnerable narcissists had a central position in terms of disliking, as they were disliked by otherwise unconnected network members. In all, these findings indicate that both forms of narcissism are unique predictors of unpopularity in peer-networks.

1. Introduction

Narcissism is a highly interpersonal phenomenon. In their effort to maintain a positive sense of self, narcissists often denigrate others, and experience significant dislike from those around them at longer acquaintance (e.g., Paulhus, 1998). However, much of the work on understanding the interpersonal consequences of narcissism has focused on isolated dyadic relationships, rather than the wider interpersonal context (Clifton, 2011). Social network analysis (SNA) provides a tool to analyze the structure of peer networks and the status of individuals within the network. A major advantage of SNA is that, unlike any other methodology, it allows an investigation of the interplay between personality and holistic patterns in larger peer-networks. Such a focus on the larger peer-network seems crucial for a better understanding of narcissism—a phenomenon closely interwoven with peer-reputations (Campbell & Campbell, 2009). In the current investigation, we therefore used SNA to investigate the associations between two different types of narcissism (grandiose and vulnerable narcissism) and centrality within peer networks.

Grandiose narcissism is a personality trait characterized by an unrealistically positive self-view, a strong self-focus, feelings of entitlement, and a lack of regard for others (Campbell & Miller, 2011). Grandiose narcissists' social behavior is a mixture between charming, extraverted behavior and disagreeableness (Paulhus, 2001). At short acquaintance, grandiose narcissists' extraverted and dominant attributes enable them to impress their interaction partners (Back, Schmukle, & Egloff, 2010; Paulhus, 1998). At longer acquaintance, however, narcissists' disagreeableness is more evident, and they become less popular among their peers (Paulhus, 1998).

Vulnerable narcissism, in contrast, reflects a defensive and insecure sense of grandiosity that obscures feelings of inadequacy, incompetence, and negative affect (Campbell & Miller, 2011; Miller et al., 2011). In contrast to the arrogance and open displays of dominance and grandiosity that characterize grandiose narcissism, the vulnerable subtype is characterized by self-reported feelings of inferiority, depression, depletion, shame-proneness, and high reactivity to evaluative events. Vulnerable narcissists' social behavior is characterized by hostility, arrogance, social avoidance, and a lack of empathy (Dickinson & Pincus, 2003; Hendin & Cheek, 1997).

Hence, both grandiose and vulnerable narcissists possess a desire to maintain a grandiose self. However, whereas grandiose narcissists confidently act out this desire in interactions with their peers, vulnerable narcissists are socially inhibited and mainly concerned with the protection of their fragile egos.

What roles do grandiose and vulnerable narcissists play in their social networks? SNA represents a method of quantifying and

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examining the patterns of relationships within social groups (Kanfer & Tanaka, 1993). It views individuals as tied and embedded within a larger network of social connections, allowing the investigation of individuals' positions within the network.

One fundamental concept in SNA is centrality. It reflects how embedded or "central" a given node (person) is within the network. Two main indicators of centrality are *degree centrality* and *betweenness*. Degree centrality represents the number of other individuals that an individual is directly connected to. Degree centrality can be further decomposed into Indegree and Outdegree, with Indegree representing the number of links incoming from other network members and Outdegree representing the number of links outgoing to others. For example, if Bonnie is known by all of her fellow students, but Bonnie herself knows only a few people, she would have a high Indegree and a low Outdegree score.

Betweenness, in contrast, is a measure of indirect connections. It represents the extent to which an individual lies between other individuals on the shortest pathways connecting them. If, for example, Alice doesn't know Carol, but knows Bonnie, and Bonnie knows Carol, Bonnie would have a high betweenness score, because she connects otherwise unconnected group members (Alice and Carol). An individual with high betweenness centrality may act as a "power broker" or a "gatekeeper," who can influence the spread of information through the network (Freeman, 1979).

Relatively little attention has been paid to narcissists' roles in social networks. In a study by Clifton, Turkheimer, and Oltmanns (2009), pathological narcissism was associated with betweenness centrality in a network of Air Force recruits who went through training together. In addition, grandiose narcissism has been associated with having a larger number of direct connections to other users ("friendships") in online social networks (Buffardi & Campbell, 2008). These studies provide first hints that narcissists may hold central positions within social networks.

However, it is not yet clear whether narcissists are actually liked by their peers, or whether they are simply more visible and therefore occupy central positions in their peer networks. In the current research, we therefore distinguished between liking-based centrality (i.e., likability) and disliking-based centrality (i.e., dislikability). For likability, a high Indegree score would indicate that a person is liked by others, and a high Outdegree score would indicate that a person likes others. A high likability betweenness score would indicate that a person 'links' otherwise unconnected group members through their person: e.g. if Alice likes Bonnie and Bonnie likes Carol, but Alice and Carol do not like each other, Bonnie's betweenness score is high. For dislikability, a high Indegree score would mean that a person is nominated by many peers as a disliked group member, whereas a high Outdegree score indicates that a person dislikes many others. A high disliking betweenness score indicates that a person dislikes and is disliked by group members who are themselves unconnected with each other in terms of disliking. In other words, if Alice and Carol hold no animosity toward one another, but Alice dislikes Bonnie, and Bonnie dislikes Carol, Bonnie would be high in disliking betweenness.

Because grandiose narcissists are very visible in well-acquainted peer groups through displays of dominant and disagreeable behavior (Campbell & Foster, 2007), we considered it likely that they would be actively disliked by their peers (i.e., would be high in dislikability centrality). Vulnerable narcissists, are cold and antagonistic, yet socially inhibited (Dickinson & Pincus, 2003; Hendin & Cheek, 1997), and should therefore be less visible in their peer-groups. Therefore, vulnerable narcissists should be low in likability centrality, but not necessarily high in dislikability centrality. Hence, whereas grandiose narcissists should receive many disliking nominations, vulnerable narcissists should receive few liking-based nominations.

We examined the relations of grandiose and vulnerable narcissism with centrality in mixed-sex groups of well-acquainted university students in their naturalistic settings (classrooms). We measured grandiose and vulnerable narcissism via self-report, and gathered peer nominations for liking and disliking. We focused on degree centrality and betweenness centrality as social network indicators, testing both liking-based and disliking-based nominations. We hypothesized that grandiose narcissism would predict high dislikability-centrality and that vulnerable narcissism would predict low liking-based centrality. In addition, we explored the links between both types of narcissism and network betweenness indicators. To test whether grandiose and vulnerable narcissism uniquely predict social network indicators, we computed their partial effects. We considered it important to control for self-esteem in our analyses, as self-esteem is a trait that is confounded with grandiose narcissism (positively; Miller et al., 2011) and vulnerable narcissism (negatively; Dickinson & Pincus, 2003), and interpersonal outcomes (Leary & Baumeister, 2000).

2. Method

2.1. Participants and procedure

In the Polish higher education system, students are generally assigned to formal study groups, in which they take all of their classes together. Four mixed-sex groups of well-acquainted students from two large southern Polish public universities (two groups from each university) participated in the study. Students in each group (30.5 persons per group on average; SD = 5.5) had been acquainted for at least six months and interacted with one another on a daily basis. A total of 122 participants (91 female; 72.0% female on average per group with SD = 14.6%; M_{age} = 20.8, SD = 1.4) took part in the study.

Assessments took place in groups. Participants were seated in a circle and filled out self-report and peer-assessment measures. To safeguard anonymity, they were randomly assigned adhesive cards with numbers which they affixed to themselves. These numbers, rather than names, were used to refer to group members in questionnaires.

2.2. Measures

2.2.1. Narcissism

As a measure of grandiose narcissism we used the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). The validated Polish adaptation of the NPI (Bazińska & Drat-Ruszczak, 2000) consists of 34 items and has a five-point Likert-type response format (1 = *does not apply to me* to 5 = *applies to me*) (α = .91).

We used a Polish version of the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997) to measure vulnerable narcissism (1 = *very uncharacteristic or untrue/strongly disagree* to 5 = *very characteristic or true/strongly agree*) (α = .62).

2.2.2. Self-esteem

We assessed self-esteem using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; Polish version by Dzwonkowska, Lachowicz-Tabaczek, & Łaguna, 2008; 1 = *strongly agree* to 4 = *strongly disagree*) (α = .80).

2.2.3. Social network indicators

Participants were asked to nominate the persons they liked most in their group. They were also asked to nominate persons whom they disliked (we emphasized that these nominations were voluntary). No limitation on the number of nominations was imposed. On average, participants made 5.90 liking nominations

and 0.89 disliking nominations. Based on these nominations we generated directed sociomatrices and applied network analysis techniques to them. Using Ucinet 6.0 (Borgatti, Everett, & Freeman, 2002) we calculated standardized centrality indicators for each group member. We computed the two degree centrality indicators (Indegree and Outdegree) and betweenness centrality separately for likability and dislikability.

3. Results

Table 1 presents descriptive statistics and zero-order correlations between all variables.

3.1. Liking

In order to investigate how narcissism is related to network centrality, we performed a regression analysis of liking-based Indegree (i.e., the liking nominations *received* by a person) on grandiose narcissism, vulnerable narcissism, age, and sex. To control for possible group differences in liking, we also entered group membership as three control dummy variables into the regression model. The effect of grandiose narcissism on liking-based Indegree was non-significant ($\beta = -.042$, $p = .546$). Vulnerable narcissism, however, negatively predicted liking-based Indegree ($\beta = -.193$, $p = .006$). This finding indicates that vulnerable narcissists were liked by fewer peers in their groups than individuals low in vulnerable narcissism. When we added self-esteem into the regression equation, the effect of grandiose narcissism remained insignificant ($\beta = -.020$, $p = .793$) and the effect of vulnerable narcissism remained significant ($\beta = -.215$, $p = .004$).

A second regression analysis with liking-based Outdegree as the outcome (i.e. the liking nominations *provided* by a person) yielded no effect for grandiose narcissism ($\beta = -.029$, $p = .721$) and a marginal effect of vulnerable narcissism ($\beta = -.155$, $p = .056$). The result suggests that vulnerable narcissists may have a tendency to like fewer peers. Again, these models were not affected by the inclusion of self-esteem for vulnerable narcissism ($\beta = -.187$, $p = .029$) and for grandiose narcissism ($\beta = .005$, $p = .954$). Regression analyses of liking-based Betweenness yielded no significant effects.

3.2. Disliking

We then ran a series of regression analyses of disliking-based centrality indices in an analogous manner to the analyses described above. Grandiose narcissism ($\beta = .197$, $p = .037$) but not vulnerable narcissism ($\beta = .125$, $p = .178$) predicted disliking-based Indegree. This finding indicates that only grandiose narcissists were actively disliked by their peers. When we controlled for self-esteem, the effect of grandiose narcissism remained marginally significant ($\beta = .180$, $p = .073$) and the effect of vulnerable narcissism remained insignificant ($\beta = .141$, $p = .151$). Neither grandiose nor vulnerable narcissism significantly predicted disliking-based Outdegree, suggesting that narcissism was not associated with active disliking of one's peers.

Both grandiose ($\beta = .234$, $p = .010$) and vulnerable narcissism ($\beta = .209$, $p = .020$) independently predicted disliking-based betweenness. These results indicate that both types of narcissists disliked, and were disliked by, group members who themselves had no particular dislike for one another. In other words, both grandiose and vulnerable narcissists had a central standing in terms of dislikability in their networks. As in the other analyses, self-esteem did not significantly account for these effects. When self-esteem was controlled for, effects remained significant for grandiose ($\beta = .238$, $p = .014$) and vulnerable narcissism ($\beta = .206$, $p = .031$).

4. Discussion

The current research is the first to demonstrate that the two types of narcissism are not only related to aspects of dyadic relationships or small group processes, but also to the structure of larger peer-networks. Interestingly, the influences of grandiose and vulnerable narcissism on social network indicators were independent of each other. Grandiose and vulnerable narcissism were both uniquely linked to indicators of social maladjustment in groups of well-acquainted peers. Grandiose narcissists received more disliking nominations from their peers, and had a central position within their network in terms of disliking. Hence, using a novel methodological approach, we were able to provide further support for the notion that grandiose narcissists evoke negative reactions in well-acquainted others (Campbell & Campbell, 2009; Paulhus, 1998). The current findings extend earlier studies, as they demonstrate that, rather than being low in likability, grandiose narcissists are actively disliked by their peers. Independently of these effects, vulnerable narcissism was related to low popularity, as indicated by decreased liking nominations. The low number of liking nominations is a likely consequence of vulnerable narcissists' avoidant interpersonal style (Dickinson & Pincus, 2003). Contrary to our

Table 1
Descriptive statistics and zero-order correlations among all study variables.

	1	2	3	4	5	6	7	8	9
Liking									
1. Indegree	–								
2. Outdegree	.59**	–							
3. Betweenness	.22**	.26**	–						
Disliking									
4. Indegree	−.12	.02	.09	–					
5. Outdegree	.01	−.07	−.13	.00	–				
6. Betweenness	−.04	−.00	.02	.60**	.37**	–			
Individual differences									
7. NPI	−.04	−.00	−.07	.19*	.14	.26**	–		
8. HSNS	−.23*	−.17†	.03	.14	.15†	.22*	.12	–	
9. RSES	−.07	−.07	−.17†	.05	−.10	.00	.32**	−.25**	–
M	0.21	0.21	0.04	0.03	0.03	.00	103.65	28.18	29.38
SD	0.14	0.19	0.05	0.07	0.04	0.00	18.11	5.03	3.67

Note: NPI = Narcissistic Personality Inventory, HSNS = Hypersensitive Narcissism Scale, RSES = Rosenberg's Self-Esteem Scale.
Descriptive statistics are for normalized centrality indices to allow across-group comparisons.
† $p < .09$.
* $p < .05$.
** $p < .01$ (two-tailed).

expectations, vulnerable narcissists also had a central position in terms of disliking. This finding indicates that even though vulnerable narcissists were not directly disliked by many peers, they disliked and were disliked by otherwise unconnected network members.

The relationships of both sub-types of narcissism with disliking-based betweenness indicate that highly narcissistic individuals often "stand in between" group members who would otherwise be unconnected in terms of disliking. According to social balance theory, they might actually connect people in their mutual dislike as the enemy of one's enemy should become one's friend (Aronson & Cope, 1968). This mechanism may contribute to growing integration of a peer group due to new evolving relationships based in mutual dislike of narcissists. Future research may address this possibility.

In no case were the effects of grandiose and vulnerable narcissism due to self-esteem. This point seems notable, as self-esteem (or the positive affectivity that typically goes along with it) is a correlate of popularity that could theoretically account for a positive link with grandiose and a negative link with vulnerable narcissism. We were able to rule out this alternative explanation.

In summary, the present findings demonstrate that grandiose and vulnerable narcissism are interwoven with peer-reputations. Both sub-types of narcissism evoke negative reactions in others, but each in a distinct way.

Acknowledgments

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