Humor style mediates the association between pathological narcissism and self-esteem

Virgil Zeigler-Hill [a,*], Avi Besser [b,*]

[a] Department of Psychology, University of Southern Mississippi, 118 College Drive #5025, Hattiesburg, MS 39406, USA
[b] Department of Behavioral Sciences, Center for Research in Personality, Life Transitions, and Stressful Life Events, Sapir Academic College, D.N. Hof Ashkelon 79165, Israel

ARTICLE INFO

ABSTRACT

The aim of the present study was to examine whether humor styles mediated the associations between the pathological forms of narcissism (grandiose narcissism and vulnerable narcissism) and self-esteem in a sample of Israeli undergraduates ($N = 200$). Grandiose narcissism was positively associated with the use of adaptive humor (i.e., self-enhancing humor and affiliative humor), whereas vulnerable narcissism was negatively associated with the use of adaptive humor and positively associated with the use of maladaptive humor (i.e., self-defeating humor and aggressive humor). These forms of humor were found to mediate the associations between the pathological forms of narcissism and self-esteem. Findings are discussed in terms of the role that humor may play in the self-esteem regulation of individuals with pathological narcissism.

1. Introduction

Narcissism is a complex and multifaceted construct that blends feelings of grandiosity with a heightened sensitivity to experiences that threaten their inflated feelings of self-worth (Morf & Rhodewalt, 2001). A number of studies have examined the link between narcissism and self-esteem and have shown that the correlation between the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979, 1981; Raskin & Terry, 1988) and the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) is generally around 0.26 (see Brown and Zeigler-Hill (2004), for a review). This correlation is often significant but it is surprisingly low considering how easy it would be for narcissists to claim high levels of self-esteem on a direct self-report measure such as the RSE.

The association between narcissism and self-esteem is further complicated by the fact that there is both a *normal* form of narcissism and a *pathological* form of narcissism (Miller & Campbell, 2008; Pincus et al., 2009). The normal form of narcissism has been the focus of social-personality psychologists who have conceptualized narcissism as a normally distributed personality feature that has adaptive properties (e.g., extraversion) as well as maladaptive properties (e.g., feelings of entitlement; see Miller and Campbell (2008) or Pincus and Lukowitsky (2010), for

extended discussions). This form of narcissism is most often captured by the NPI. In contrast, clinical psychologists generally consider narcissism in terms of Narcissistic Personality Disorder (NPD) which is associated with an array of maladaptive outcomes including arrogance, lack of empathy, a willingness to exploit others, and emotional instability. New assessment tools such as the Pathological Narcissism Inventory (PNI; Pincus et al., 2009) have been developed in recent years to measure the more pathological form of narcissism which is not adequately captured by the NPI. Although the pathological form of narcissism captured by the PNI is considered to be largely maladaptive, the PNI has been used successfully in both non-clinical and clinical samples to predict outcomes related to pathological narcissism (e.g., Pincus et al., 2009).

Pathological narcissism consists of both a grandiose and a vulnerable form (Pincus & Lukowitsky, 2010). Grandiose narcissism is the most easily recognized form of pathological narcissism because its pattern of self-aggrandizement, exploitation, and exhibitionism is consistent with the diagnostic criteria for NPD (American Psychiatric Association, 2000). In contrast, the vulnerable form of pathological narcissism is characterized by poor self-regulation which results in self-criticism, negative affective experiences, and interpersonal problems. Although the NPI generally has a positive correlation with measures of self-esteem (e.g., Brown & Zeigler-Hill, 2004), the grandiose and vulnerable forms of pathological narcissism captured by the PNI have been found to have either no association (i.e., grandiose narcissism) or a negative association with self-esteem measures (i.e., vulnerable narcissism; Pincus et al., 2009). This pattern of results suggests that

* Corresponding authors. Tel.: +1 601 266 4596; fax: +1 601 266 5580 (V. Zeigler-Hill), tel.: +972 8 6802869; fax: +972 8 6610783 (A. Besser).
E-mail addresses: virgil@usm.edu (V. Zeigler-Hill), besser@mail.sapir.ac.il (A. Besser).

additional research is necessary to gain a better understanding of what factors may contribute to the feelings of self-worth expressed by individuals with pathological forms of narcissism.

Given recent research concerning the role of humor in outcomes associated with pathological narcissism (Besser & Zeigler-Hill, submitted for publication), we were interested in examining whether humor styles mediated the associations between the pathological forms of narcissism and self-esteem. Our interest in humor stems from the identification of humor styles that may be either beneficial for well-being (i.e., adaptive humor) or detrimental to well-being (i.e., maladaptive humor; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003). Four distinct humor styles have been identified with two of these styles being adaptive (i.e., affiliative humor and self-enhancing humor) and two styles being maladaptive (i.e., aggressive humor and self-defeating humor). *Affiliative humor* refers to benign humor that is used to enhance relationships by saying funny things or engaging in witty banter to amuse others. *Self-enhancing humor* concerns benign humor that is used to enhance the self through activities such as maintaining a humorous perspective in the face of adversity which may help with emotion regulation and coping. *Aggressive humor* refers to injurious humor that is used to enhance the self by means such as sarcasm, teasing, or ridiculing others. *Self-defeating humor* is a form of injurious humor that is used to enhance relationships at cost to the self through acts such as self-disparagement. A rapidly growing body of research has shown that the adaptive and maladaptive styles of humor are differentially related to emotional and psychosocial well-being in the ways that would be expected. For example, adaptive humor is often associated with positive outcomes such as positive relationships with others, whereas maladaptive humor is generally associated with negative outcomes such as interpersonal conflict (see Martin (2007), for a review).

Recent research suggests that feelings of self-worth influence how individuals use humor. For example, self-esteem has been found to be positively correlated with the adaptive styles of humor and negatively correlated with the maladaptive styles (Galloway, 2010). That is, individuals with high self-esteem tend to use adaptive forms of humor that serve affiliative or self-enhancing goals rather than those that are maladaptive. The pathological forms of narcissism have also been shown to be associated with particular humor styles. More specifically, Besser and Zeigler-Hill (submitted for publication) found that grandiose narcissism was positively associated with the use of adaptive humor whereas vulnerable narcissism was negatively associated with the use of adaptive humor and positively associated with the use of maladaptive humor. This suggests that grandiose and vulnerable narcissists may use somewhat different styles of humor in their interactions with others.

1.1. Overview and predictions

The goal of the present study was to expand what is currently known about the links between the forms of pathological narcissism and self-esteem by examining whether these associations are mediated by humor styles. That is, we believed that the humor styles adopted by individuals with high levels of grandiose or vulnerable narcissism may provide at least a partial explanation for their reported feelings of self-worth. Our hypothesis was that the use of adaptive and maladaptive humor styles – which have been shown to be associated with adjustment and interpersonal relationship functioning – may be one pathway by which pathological forms of narcissism may influence self-esteem level. More specifically, we believed that the use of adaptive humor styles which emphasize affiliation and self-enhancement would foster positive relationships with others and may indirectly serve self-esteem regulation goals (i.e., an individual may feel better about himself when he receives the respect and admiration of others; Leary &

Baumeister, 2000). In contrast, we expected that the use of maladaptive humor may be detrimental to self-esteem because of the damage that it causes to interpersonal relationships (i.e., an individual may experience rejection after belittling others which may result in lowered self-esteem). The mediational roles that we propose for adaptive and maladaptive humor styles are consistent with the results of previous studies that have examined mediational hypotheses concerning humor styles (e.g., Dozois, Martin, & Bieling, 2009; Kazarian, Moghnie, & Martin, 2010).

2. Method

2.1. Participants and procedure

Participants were 200 undergraduates (60 men and 140 women) who took part in this study during the first week of their first semester at a university or college in the southern region of Israel. Participants were asked to provide written informed consent after the procedures had been fully explained. Although participants were reminded that they could discontinue their participation in the study at any time, none elected to do so. The mean age of the participants was 23.57 years (SD = 2.91). Participants completed measures of pathological narcissism, humor styles, and self-esteem. Potential order effects were controlled by presenting the questionnaires in a randomized order.

2.2. Measures

2.2.1. Pathological narcissism

The Pathological Narcissism Inventory (PNI; Pincus et al., 2009) was used to assess grandiose and vulnerable aspects of pathological narcissism. The PNI is a 52-item measure for which responses were made on scales ranging from 0 (*not at all like me*) to 5 (*very much like me*). This instrument captures seven dimensions of pathological narcissism: contingent self-esteem (e.g., "It's hard for me to feel good about myself unless I know other people like me"), exploitative tendencies (e.g., "I can make anyone believe anything I want them to"), self-sacrificing self-enhancement (e.g., "I try to show what a good person I am through my sacrifices"), hiding of the self (e.g., "When others get a glimpse of my needs, I feel anxious and ashamed"), grandiose fantasy (e.g., "I often fantasize about being recognized for my accomplishments"), devaluing (e.g., "When others don't meet my expectations, I often feel ashamed about what I wanted"), and entitlement rage (e.g., "It irritates me when people don't notice how good a person I am"). As outlined in recent studies (Tritt, Ryder, Ring, & Pincus, 2010; Wright, Lukowitsky, Pincus, & Conroy, 2010), these seven dimensions load onto the two higher-order factors of grandiose narcissism (exploitative, self-sacrificing self-enhancement, and grandiose fantasy) and vulnerable narcissism (contingent self-esteem, hiding the self, entitlement rage, and devaluing). Initial information concerning the reliability and validity of the PNI has shown that it is correlated in the expected direction with other measures of narcissism (e.g., NPI) as well as related constructs such as self-esteem level, interpersonal style, clinical outcomes, and contingent self-esteem (Pincus et al., 2009; Zeigler-Hill, Clark, & Pickard, 2008). The internal consistencies of the PNI grandiosity and vulnerability subscales were 0.89 and 0.90, respectively.

2.2.2. Humor styles

The Humor Styles Questionnaire (Martin et al., 2003) was used to assess adaptive and maladaptive humor styles. It is a 32-item measure that consists of four subscales that assess the following styles of humor: affiliative (e.g., "I laugh and joke a lot with my friends"; $\alpha = 0.70$), self-enhancing (e.g., "My humorous outlook

on life keeps me from getting overly upset or depressed about things"; $\alpha = 0.84$), aggressive (e.g., "If someone makes a mistake, I will often tease them about it"; $\alpha = 0.71$), and self-defeating (e.g., "I let people laugh at me or make fun at my expense more than I should"; $\alpha = 0.80$). Responses were made on scales ranging from 1 (*totally disagree*) to 7 (*totally agree*). Martin et al. (2003) demonstrated good reliability and validity for this measure.

2.2.3. Self-esteem level

The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) is a 10-item measure of global self-esteem (e.g., "On the whole, I am satisfied with myself"). Participants were instructed to complete the instrument according to how they typically or generally feel about themselves. Responses were made on scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This instrument is regarded as a well-validated and reliable measure of global self-regard (e.g., Blascovich & Tomaka, 1991). The internal consistency of this measure for the present study was $\alpha = 0.85$.

3. Results

3.1. Data analytic strategy

We examined the normality of the distributions of the variables in the present study by using the Kolmogorov–Smirnov test (K–S test; Smirnov, 1948), the Lilliefors test (Lilliefors, 1967), and the Shapiro–Wilk test (Shapiro & Wilk, 1965). The results of these tests indicated that the distributions of these measures were relatively normal ($ps > 0.20$). We also examined whether multicollinearity was a concern between the pathological forms of narcissism and self-esteem. The absence of multicollinearity was suggested by the eigenvalues of the scaled and uncentered cross-products matrix, condition indices, and variance decomposition proportions, along with variance inflation factors (VIF) and tolerances from multicollinearity analyses.

Our analyses focused on the proposed role that adaptive and maladaptive humor may play in mediating the associations between the pathological forms of narcissism and self-esteem using a Structural Equation Modeling (SEM; Hoyle & Smith, 1994) strategy that assessed measurement errors in the dependent and independent variables. We conducted the SEM analysis in two stages. During the first stage, SEM was used to examine the direct associations between the pathological forms of narcissism and self-esteem. During the second stage, following the criteria for mediation proposed by Baron and Kenny (1986), SEM was used to examine whether humor styles mediated the association between the pathological forms of narcissism and self-esteem. All analyses were conducted in AMOS (Version 18; Arbuckle, 2009) using the maximum-likelihood method in which we specified two latent factors (i.e., adaptive humor and maladaptive humor) with two indicators for each of these factors (as previously confirmed and demonstrated in samples of community adults as well as students using CFA strategy by Besser, Luyten, and Blatt (submitted for publication), Besser and Zeigler-Hill (submitted for publication), and Luyten, Besser, and Mayes (submitted for publication)) as criterion variables which controls for their shared variance. The following fit indices were used: the χ^2/df ratio, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Non-Normed Fit Index (NNFI). A model in which χ^2/df was $\leqslant 3$, *CFI* and *NNFI* were greater than 0.90, and the RMSEA index was between 0.00 and 0.06 with confidence intervals between 0.00 and 0.08 (Hu & Bentler, 1999) was considered acceptable. These moderately stringent acceptance criteria clearly reject inadequate or poorly specified models while

accepting models that meet real-world criteria for reasonable fit and representation of the data (Kelloway, 1998).

Although the recommendations made by Baron and Kenny (1986) are influential and have been extensively cited, some criticisms have been raised about this approach such as the use of Sobel's (1982) large sample test to evaluate the significance of indirect associations (e.g., MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). As a result, we evaluated the proposed mediational model by studying the sampling variability of estimates of the indirect association using the bootstrap framework (Mallinckrodt, Abraham, Wei, & Russell, 2006; Shrout & Bolger, 2002). Using AMOS, we implemented this procedure in the direct and mediational models which involved drawing 5000 bootstrapping samples. We found that 100% of the bootstrap samples converged for our models. The 95% confidence intervals and the confidence intervals based on the bias-corrected bootstrap for the direct and indirect associations in these models were consistent with the conclusion that the direct and indirect associations were significantly different from zero. Standard errors (SE) and confidence intervals (CI) based on the bias-corrected bootstrap are reported in parentheses. These results suggest that this procedure led to a stable estimate of the distributions. Descriptive statistics and zero-order correlations for the study variables are displayed in Table 1.

3.2. Direct association model

The direct associations SEM model for grandiose and vulnerable narcissism with self-esteem levels (controlling for the shared variance between grandiose and vulnerable narcissism scales [$r = 0.61$, $p < 0.001$]) had zero degrees of freedom. This model indicated that both had significant unique contributions to the prediction of self-esteem levels with vulnerable narcissism significantly associated with low levels of self-esteem [$\beta = -0.59$, $t = -7.41$, $p < 0.0001$; $SE = 0.06$, 95% CI (-0.52, -0.28), $p < 0.001$] and grandiose narcissism significantly associated with high levels of self-esteem [$\beta = 0.25$, $t = 3.17$, $p < 0.002$; $SE = 0.07$, 95% CI (0.05, 0.31), $p < 0.01$]. The direct association model explained 23% of the variance in self-esteem level. As can be seen in Table 1, grandiose narcissism was not significantly associated with self-esteem ($r = -0.11$, ns). However grandiose narcissism was significantly associated with high levels of self-esteem when vulnerable narcissism was entered into the model and their joint associations were estimated. This suggests a suppression effect such that the magnitude of the relationship between the grandiose form of pathological narcissism and self-esteem increases when vulnerable narcissism is included in the model (see Paulhus, Robins, Trzesniewski, and Tracy (2004) or Tzelgov and Henik (1991), for a review of suppression effects). This suppression effect emerged because vulnerable narcissism explained variability in grandiose narcissism such that accounting for this shared variance allows the unique association between grandiose narcissism and self-esteem to emerge.[1]

3.3. Mediational model

We ran a mediational SEM model including grandiose narcissism and vulnerable narcissism (controlling for their shared

---

[1] We collected a new matched independent sample of 180 participants (70 men and 110 women) in order to determine whether we could replicate the suppression effect. The results for this second sample were similar to the earlier results such that the zero-order association between grandiose narcissism and self-esteem was not significant ($r = 0.04$, ns) but this relationship reached conventional levels of significance when vulnerable narcissism was included in the model [$\beta = 0.30$, $t = 4.04$, $p < 0.001$; $SE = 0.06$, 95% CI (0.09, 0.35), $p < 0.001$].

Table 1
Descriptive statistics and zero-order correlations.

	1	2	3	4	5	6	7
Pathological narcissism							
1. Grandiose narcissism							
2. Vulnerable narcissism	0.61***						
Humor styles							
3. Affiliative humor	0.16*	−0.07					
4. Self-enhancing humor	0.17*	−0.10	0.42***				
5. Aggressive humor	0.19**	0.21**	0.15*	0.16*			
6. Self-defeating humor	0.21**	0.26***	0.14	0.20**	0.34***		
Self-esteem level							
7. RSE	−0.11	−0.43***	0.27***	0.32***	−0.03	−0.26***	
M	2.54	1.79	5.38	4.28	3.18	2.68	3.30
SD	0.74	0.77	0.89	1.24	0.88	1.11	0.53

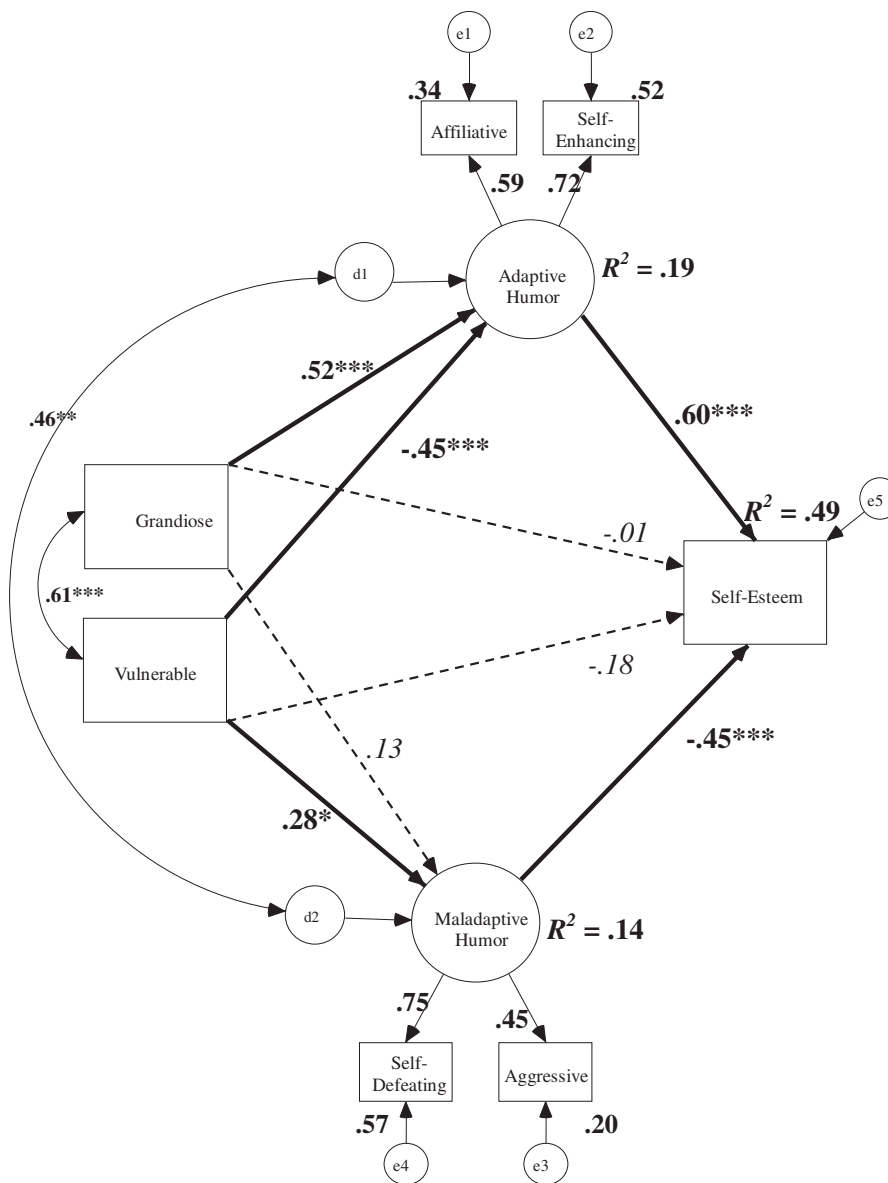$N = 200$, *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ (two tailed).

Fig. 1. Mediational model of the associations among pathological narcissism, humor styles, and self-esteem. *Note:* Rectangles indicate measured variables and the large circles represent latent constructs. Small circles reflect residuals (e) or disturbances (d); bold numbers above or near endogenous variables represent the amount of variance explained (R^2). Bidirectional arrows depict covariance and unidirectional arrows depict hypothesized directional links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. Wide paths indicate significant indirect/mediated association. $\Delta R^2 = 26\%$, $N = 200$; **$p < 0.01$, ***$p < 0.001$.

variance), adaptive humor and maladaptive humor (controlling for their shared variance), and self-esteem. This model fit the observed data very well: χ^2 (7) = 6.97, $p > 0.43$, $\chi^2/df = 0.99$, NNFI = 0.98, CFI = 1.0, RMSEA = 0 [95% CI 0.000, 0.08]. As indicated by Fig. 1, the association between vulnerable narcissism and low self-esteem was mediated [SE = 0.37, 95% CI (-0.78, -0.11), $p < 0.001$] by high levels of maladaptive humor [$\beta = 0.28$, $t = 2.22$, $p < 0.03$; SE = 0.09, 95% CI (0.01, 0.35), $p < 0.05$] and low levels of adaptive humor [$\beta = -0.45$, $t = -3.77$, $p < 0.0001$; SE = 0.10, 95% CI (-0.51, -0.13), $p < 0.001$] as indicated by the findings that the direct path from vulnerable narcissism and self-esteem decreased compared to the direct associations model [$\beta = -0.18$, $t = 1.28$, ns; SE = 0.38, 95% CI (-0.32, 0.33), ns]. Adaptive humor was associated with high levels of self-esteem [$\beta = 0.60$, $t = 3.59$, $p < 0.0001$; SE = 0.68, 95% CI (0.32, 1.49), $p < 0.001$] and maladaptive humor was associated with low levels of self-esteem [$\beta = -0.45$, $t = -2.79$, $p < 0.005$; SE = 0.76, 95% CI (-1.37, 0.20), $p < 0.01$]. Comparisons of the magnitude of the paths indicated that the association of vulnerable narcissism with self-esteem level through its association with low levels of adaptive humor ($z' = 2.65$, $p < 0.008$) was stronger than through its association with high levels of maladaptive humor ($z' = 1.80$, ns). The association between grandiose narcissism and high self-esteem was mediated [SE = 0.17, 95% CI (0.04, 0.46), $p < 0.01$] by high levels of adaptive humor [$\beta = .52.$, $t = 4.21$, $p < 0.001$; SE = 0.10, 95% CI (0.18, 0.56), $p < 0.001$] as indicated by the findings that the direct path from grandiose narcissism and self-esteem decreased compared to the direct associations model [$\beta = -0.01$, $t = -0.06$, ns; SE = 0.18, 95% CI (-0.28, 0.15), ns].

4. Discussion

The results of the present study found that the associations between the pathological forms of narcissism and self-esteem were mediated by humor styles. More specifically, the association between grandiose narcissism and high self-esteem was accounted for by the tendency for those with high levels of grandiose narcissism to engage in adaptive forms of humor. Similarly, the association between vulnerable narcissism and low self-esteem was accounted for by the tendency for those with high levels of vulnerable narcissism to engage in maladaptive forms of humor and refrain from using adaptive styles of humor. These results largely supported our predictions and are consistent with previous research suggesting that humor styles may play an important role in the outcomes associated with the pathological forms of narcissism such as emotional responses to stress (e.g., Besser & Zeigler-Hill, submitted for publication).

Our results suggest that grandiose narcissism is associated with high self-esteem but that this association only emerges when vulnerable narcissism is controlled. This is most likely due to the pathological features shared by these forms of narcissism (e.g., feelings of entitlement; Pincus et al., 2009). The high levels of self-esteem reported by individuals with high levels of grandiose narcissism appear to be due, at least in part, to their use of adaptive humor which allows them to enhance both themselves and others. In contrast, individuals with high levels of vulnerable narcissism were found to not only refrain from using humor in an adaptive way but they actually use humor in a way that causes injury both to themselves (i.e., self-defeating humor) and others (i.e., aggressive humor). The use of maladaptive forms of humor may stem from a misguided attempt to gain the approval and acceptance of others. These differential associations between the pathological forms of narcissism and humor styles are consistent with previous findings (Besser & Zeigler-Hill, submitted for publication) and may help us understand some of the interpersonal differences that have been observed between grandiose and vulnerable forms of pathological narcissism (e.g., Pincus et al., 2009).

The results of the present study are consistent with previous findings which have shown that there are important differences between the pathological forms of narcissism (e.g., Besser & Priel, 2009, 2010; Besser & Zeigler-Hill, 2010, submitted for publication). For example, grandiose narcissism may be associated with adaptive humor because this form of humor may help individuals with high levels of grandiose narcissism cultivate positive relationships they can use to maintain and enhance their tenuous feelings of self-worth. In contrast, the forms of humor that characterize those with vulnerable narcissism suggest that individuals with high levels of vulnerable narcissism use maladaptive forms of humor that target themselves and others for insult and degradation.

There are important limitations associated with the present study. The first limitation is that the present study relied exclusively on self-report measures which make it possible that some participants may not have provided accurate responses. The second limitation is that humor styles were the only potential mediators that we examined in the present study even though there are certainly other mediators that are likely to play an important role in the association between pathological narcissism and self-esteem (e.g., interpersonal style). The third limitation is that its correlational nature precludes the determination of causality. That is, the present study cannot provide a definitive answer concerning the direction of the observed effects. Further research is needed to develop a clearer understanding of the causal processes that link pathological forms of narcissism, humor styles, and self-esteem. The fourth limitation concerns the generalizability of the present results beyond our Israeli student sample. This concern stems from the fact that Israelis are relatively collectivistic (Oyserman, Coon, & Kemmelmeier, 2002) which may lead them to use more adaptive forms of humor. This limitation suggests that future research should attempt to replicate the present findings in a culture that is less collectivistic.

The present study represents the first attempt to investigate associations between the pathological forms of narcissism, humor, and self-esteem. Overall these results suggest that individuals with grandiose and vulnerable forms of narcissism differ in how they use humor and that the way they use humor may explain their feelings of self-worth. More specifically, the association between grandiose narcissism and high levels of self-esteem was mediated by adaptive humor. In contrast, the association between vulnerable narcissism and low self-esteem was mediated by the use of maladaptive humor and refraining from the use of adaptive humor.

References

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.

Arbuckle, J. L. (2009). *Amos 18 user's guide*. Crawfordville, FL: Amos Development Corporation.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Besser, A., Luyten, P., & Blatt, S. J. (submitted for publication). Humor styles mediate the relationship between self-criticism, neediness, and depressive symptoms.

Besser, A., & Priel, B. (2009). Emotional responses to a romantic partner's imaginary rejection: The roles of attachment anxiety, covert narcissism, and self-evaluation. *Journal of Personality, 77*, 287–325.

Besser, A., & Priel, B. (2010). Grandiose narcissism versus vulnerable narcissism in threatening situations: Emotional reactions to achievement failure and interpersonal rejection. *Journal of Social and Clinical Psychology, 29*, 874–902.

Besser, A., & Zeigler-Hill, V. (2010). The influence of pathological narcissism on emotional and motivational responses to negative events: The roles of visibility and concern about humiliation. *Journal of Research in Personality, 44*, 520–534.

Besser, A., & Zeigler-Hill, V. (submitted for publication). Pathological forms of narcissism and perceived stress during the transition to the university: The mediating role of humor styles.

Blascovich, J., & Tomaka, J. (1991). Measures of self-esteem. In J. Robinson, P. Shaver, & L. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 161–194). New York: Academic Press.

Brown, R. P., & Zeigler-Hill, V. (2004). Narcissism and the non-equivalence of self-esteem measures: A matter of dominance? *Journal of Research in Personality, 38*, 585–592.

Dozois, D. J. A., Martin, R. A., & Bieling, P. J. (2009). Early maladaptive schemas and adaptive/maladaptive styles of humor. *Cognitive Therapy and Research, 33*, 585–596.

Galloway, G. (2010). Individual differences in personal humor styles: Identification of prominent patterns and their associates. *Personality and Individual Differences, 48*, 563–567.

Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as structural equation models: A conceptual overview. *Journal of Consulting and Clinical Psychology, 62*, 429–440.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.

Kazarian, S. S., Moghnie, L., & Martin, R. A. (2010). Perceived parental warmth and rejection in childhood as predictors of humor styles and subjective happiness. *Europe's Journal of Psychology, 3*, 71–93.

Kelloway, E. K. (1998). *Using Lisrel for structural equation modeling: A researcher's guide*. Newbury Park, CA: Sage.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In M. P. Zanna (Ed.). *Advances in experimental social psychology* (Vol. 32, pp. 1–62). New York: Academic Press.

Lilliefors, H. (1967). On the Kolmogorov–Smirnov test for normality with mean and variance unknown. *Journal of the American Statistical Association, 62*, 399–402.

Luyten, P., Besser, A., & Mayes, L. C. (submitted for publication). Adult attachment and the interpersonal regulation of distress: The mediating role of humor styles.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*, 83–104.

Mallinckrodt, B., Abraham, T. W., Wei, M., & Russell, D. W. (2006). Advances in testing statistical significance of mediation effects. *Journal of Counseling Psychology, 53*, 372–378.

Martin, R. A. (2007). *The psychology of humor: An integrative approach*. Burlington, MA: Elsevier.

Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality, 37*, 48–75.

Miller, J. D., & Campbell, W. K. (2008). Comparing clinical and social-personality conceptualizations of narcissism. *Journal of Personality, 76*, 449–476.

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry, 12*, 177–196.

Oyserman, D., Coon, H. M., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin, 128*, 3–72.

Paulhus, D. L., Robins, R. W., Trzesniewski, K. H., & Tracy, J. L. (2004). Two replicable suppressor situations in personality research. *Multivariate Behavioral Research, 39*, 301–326.

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment, 21*, 365–379.

Pincus, A. L., & Lukowitsky, M. R. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology, 6*, 421–446.

Raskin, R. N., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports, 45*, 590.

Raskin, R. N., & Hall, C. S. (1981). The narcissistic personality inventory: Alternative form reliability and further evidence of construct validity. *Journal of Personality Assessment, 45*, 159–162.

Raskin, R., & Terry, H. (1988). A principal-component analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*, 890–902.

Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.

Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality. *Biometrika, 52*, 591–611.

Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445.

Smirnov, N. V. (1948). Tables for estimating the goodness of fit of empirical distributions. *Annals of Mathematical Statistics, 19*, 279.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. In S. Leinhardt (Ed.), *Sociological methodology* (pp. 290–312). Washington, DC: American Sociological Association.

Tritt, S., Ryder, A. G., Ring, A., & Pincus, A. L. (2010). Pathological narcissism and the depressive temperament. *Journal of Affective Disorders, 122*, 280–284.

Tzelgov, J., & Henik, A. (1991). Suppression situations in psychological research: Definitions, implications and applications. *Psychological Bulletin, 38*, 953–958.

Wright, A. G. C., Lukowitsky, M. R., Pincus, A. L., & Conroy, D. E. (2010). The higher-order factor structure and gender invariance of the Pathological Narcissism Inventory. *Assessment, 17*, 467–483.

Zeigler-Hill, V., Clark, C. B., & Pickard, J. D. (2008). Narcissistic subtypes and contingent self-esteem: Do all narcissists base their self-esteem on the same domains? *Journal of Personality, 76*, 753–774.