



Humor styles and borderline personality



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ABSTRACT

The present study examined the phenotypic, genetic, and environmental correlations between four humor styles (affiliative, self-enhancing, aggressive, and self-defeating) and four dimensions of borderline personality disorder (affective instability, identity disturbance, negative relationships, self-harm) as well as a total borderline personality disorder score. Participants were 574 same-sex Australian adult twin pairs. At the phenotypic level, the two adaptive humor style dimensions (affiliative and self-enhancing) were found to correlate negatively with borderline personality and the two maladaptive humor style dimensions (aggressive and self-defeating) were found to have positive correlations with borderline personality. Bivariate genetic analyses demonstrated significant genetic, common environment, and unique environmental correlations. These results indicate that a large component of the phenotypic association between borderline personality disorder and humor style arises from the influence of shared familial and environmental factors associated with both phenotypes.

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1. Introduction

1.1. Humor and psychological correlates

The Humor Styles Questionnaire (HSQ; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) assesses four (two positive and two negative) dimensions relating to uses of humor, which have been found to be related to individual differences in psychological well-being. The two positive humor styles are affiliative humor, or the use of humor to enhance interpersonal relationships, and self-enhancing humor, or the use of humor to alleviate personal stress. The two negative styles include aggressive humor, or using humor to make fun of others in a disparaging manner, and self-defeating humor, or using excessively self-disparaging humor in an attempt to ingratiate oneself with others. These humor styles have been found to correlate with mental health dimensions such as positive correlations with the positive humor styles and social competence (Fitts, Seby, & Zlokovich, 2009), happiness (Ford, McCreight, & Richardson, 2014), perceived social support, satisfaction with life (Dyck & Holtzman, 2013), and resiliency (Cann & Collette, 2014). Negative correlations have been reported between the positive humor styles and loneliness, shyness (Fitts et al., 2009),

depression, perceived burdensomeness, thwarted belongingness, suicidal ideation (Tucker et al., 2013), depressive symptoms (Dyck & Holtzman, 2013; Tucker et al., 2013), neuroticism (Dyck & Holtzman, 2013), and social anxiety (Tucker et al., 2013). Self-enhancing humor has also been found to have positive correlations with well-being, and reporting more positive emotions (Cann & Collette, 2014) and a negative relationship with chronic worrying (Cann & Cann, 2013).

The negative humor styles have been found to correlate negatively with happiness (Ford et al., 2014) and positively with thwarted belongingness, suicidal ideation (Tucker et al., 2013), and depressive symptoms (Tucker et al., 2013). Self-defeating humor has been also found to correlate positively with loneliness, shyness (Fitts et al., 2009), depression, suicidal ideation (Tucker et al., 2013), depressive symptoms, neuroticism, greater negative physical symptoms (Dyck & Holtzman, 2013), social anxiety (Tucker et al., 2013), and chronic worrying (Cann & Cann, 2013). Fitts et al. (2009) further found a negative relationship between self-defeating humor and social competence, and Dyck and Holtzman (2013) reported a negative correlation with perceived social support and satisfaction with life. Aggressive humor has been found to be positively correlated with the likelihood to perform risky behaviors, self-reports of actual risk behaviors, and negatively with the perceived risk of risky behaviors (Cann & Cann, 2013). These results suggest that the negative humor styles are related to greater mental health problems whereas positive humor styles may be related to good mental health.

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1.2. Genetic studies of humor styles

The four humor styles have been found to have a genetic component. In a sample of North American twins, [Vernon, Martin, Schermer, and Mackie \(2008\)](#) reported that each of the four humor styles had a genetic component, with heritability estimates ranging from 5% for self-defeating humor to 44% for affiliative humor. Approximately 30% of the variance was due to common environment effects for the two negative humor styles (aggressive and self-defeating). The remaining variance was due to unique environmental effects. In a larger sample of Australian twins, [Baughman et al. \(2012\)](#) reported that a model which consisted of genetic and unique environmental effects alone was the best fitting model for the data and that heritability estimates ranged from 30% for self-enhancing humor to 47% for both the aggressive and self-defeating humor styles. Unique environmental effects were found to account for the remaining variance.

1.3. Borderline personality disorder

[Trull \(1995, 2001\)](#) describes borderline personality disorder as a commonly diagnosed disorder [for example, [Zimmerman and Coryell \(1989\)](#) found that 1.6% of a large North American community sample met the criteria for borderline personality disorder] which is characteristic of adults who engage in self-harm including suicide attempts. With respect to correlates with personality, [Trull \(2001\)](#) reported that borderline personality disorder was positively correlated with anxiety, depression, hostility, and impulsiveness, and negatively related to self-discipline and deliberation. [Distel et al. \(2009\)](#) demonstrated that borderline personality scores were positively correlated with neuroticism, antagonism, irresponsibility, and introversion.

As outlined by [Trull \(2001\)](#), mood disturbance patterns and other borderline personality characteristics have familial linkages which suggest that liability to borderline personality disorder may be influenced by genetic factors. Support for the genetic component of borderline personality disorder has been found in twins from The Netherlands ([Distel et al., 2009](#)) and twins from Belgium and Australia ([Distel et al., 2009](#)). In these studies, the borderline personality scale from [Morey \(1991\)](#) was used and heritability estimates were found between 40 and 45% with the remaining variance due to unique environmental effects (common environment was not found to significantly account for the measured variance).

1.4. Present study

Following from the pattern of relationships described above between humor styles and psychological measures, the present study examined how humor styles were related to borderline personality disorder by examining the four sub-dimensions of borderline personality disorder as outlined by [Morey \(1991\)](#) of affective instability, identity disturbance, negative relationships, and self-harm, in addition to a global borderline personality score. Both humor styles and borderline personality disorder have been found to have a genetic component, so in addition to examining the phenotypic correlations between humor styles and borderline personality dimensions, the present study further examined the genetic and environmental correlations between the scales, which, to our knowledge, is the first study to undertake such an investigation.

2. Method

2.1. Participants

Participants were from the longitudinal twin and family study from the Queensland Institute of Medical Research (see [Baughman et al., 2012; Lynskey, Agrawal, Henders, Nelson, Madden, & Martin, 2012](#)) and included 574 pairs of same-sex adult twins (236 monozygotic

(MZ) female pairs, 103 MZ male pairs, 174 dizygotic (DZ) female pairs, and 61 DZ male pairs) recruited through the National Health and Medical Research Council Australian Twin Registry. The mean age was 35.76 years ($SD = 2.52$, range = 31 to 46) and age was found to not differ across the zygosity and sex combinations ($F(3,1973) = 0.27$, $p > .80$).

2.2. Measures and procedure

Individuals completed a battery of questionnaires as part of a larger study (see description by [Lynskey et al., 2012](#)). Included in the set of questionnaires was the Borderline Features scale from the Personality Assessment Inventory (PAI-BOR; [Morey, 1991](#); see also [Distel et al., 2008](#)). There are four subscales to the borderline dimension, including: affect instability (highly emotional individuals who are quick to anger); identity problems (individuals who feel that they do not have a purpose in life); negative relationships (fail to have stable and fulfilling relationships with other people); and self-harm (individuals who engage in risky behavior and possibly self-mutilation and suicide). A total borderline score is generated as an aggregate of the scales and has been found to correlate highly with other clinical measures of borderline personality ([Trull, 2001](#)). The internal consistency value for the PAI scale was .87 for this sample (see [Distel et al., 2008](#)). The heritability estimates for the PAI scale total for this sample was 41.6% with the remaining 58.4% of the variance due to unique environmental effects (common environment was not found to have a significant effect; see [Distel et al., 2008](#)).

Individuals also completed the Humor Styles Questionnaire (HSQ; [Martin et al., 2003](#)). The HSQ consists of 32 items and measures four styles of humor: affiliative, self-enhancing, aggressive, and self-defeating. For the present sample, each scale had high reliability values, ranging from .70 for aggressive humor to .86 for affiliative humor (see [Baughman et al., 2012](#)). The humor style scale means and standard deviations for the present sample were found to be similar to those reported by [Martin et al. \(2003\)](#) for a larger non-twin population. The heritability estimates for the HSQ for this sample has been previously reported and ranged from 30% for the self-enhancing scale to 47% for both the aggressive and self-defeating scales with the remaining variance due to unique environmental effects (common environment was found to be nonsignificant; see [Baughman et al., 2012](#)).

3. Results

[Table 1](#) reports the phenotypic correlations between the humor style scales and the borderline personality dimensions. Nineteen of the 20 correlations were significant and followed a fairly consistent pattern of relationships. The two positive humor styles (affiliative and self-enhancing) were found to have, in general, negative correlations with the borderline personality scores. In contrast, the negative humor styles (aggressive and self-defeating) were positively correlated with borderline personality disorder dimensions.

Bivariate genetic analyses were then performed to further examine the covariance between each of the borderline personality disorder dimensions and the humor scales. Cholesky or triangular decomposition (see [Neale & Cardon, 1992](#)) was applied to the MZ and DZ mean square between- and within-pair covariance matrices to calculate genetic and environmental correlations. For these analyses, one twin's borderline personality scale score is correlated with his or her co-twin's score on a humor scale. If these cross-correlations are higher for MZ twins than for DZ twins, this indicates that some component of the phenotypic correlation is due to some common genetic factor(s).

In conducting the bivariate genetic analyses, four models were computed and the fit estimates were then assessed ([Neale & Cardon, 1992](#)) using the program Mx ([Neale, Boker, Xie, & Maes, 2006](#)). Specifically, models including the full ACE ($A =$ additive genetic; $C =$ common environment; $E =$ unique environment and measurement error), an AE, a CE, and an E only were computed for each pair of variables. The

Table 1
Phenotypic (rp), genetic (rg), and environmental (common = rc and unique = re) correlations between the HSQ and the PAI.

	Affiliative	Self-enhancing	Aggressive	Self-defeating
Affect instability	rp = -.20** rg = -.12 (-.29 to .06) rc = - re = -.22 (-.12 to -.31)	rp = -.38** rg = -.36 (-.18 to -.52) rc = - re = -.38 (-.30 to -.46)	rp = .11** rg = .02 (-.14 to .18) rc = - re = .15 (.05 to .24)	rp = .24** rg = .36 (.20 to .51) rc = - re = .16 (.06 to .25)
Identity disturbance	rp = -.21** rg = -.17 (-.34 to .02) rc = - re = -.18 (-.08 to -.27)	rp = -.35** rg = -.38 (-.19 to -.54) rc = - re = -.34 (-.26 to -.42)	rp = .10** rg = .07 (-.10 to .23) rc = - re = .09 (-.01 to .19)	rp = .31** rg = .48 (.33 to .62) rc = - re = .23 (.14 to .32)
Negative relationships	rp = -.20** rg = -.15 (-.31 to .01) rc = - re = -.17 (-.08 to -.26)	rp = -.26** rg = - rc = -.27 (-.09 to -.43) re = -.25 (-.17 to -.33)	rp = .09** rg = .04 (-.10 to .20) rc = - re = .12 (.02 to .21)	rp = .26** rg = - rc = .30 (.15 to .44) re = .23 (.15 to .30)
Self-harm	rp = .02 rg = .06 (-.12 to .24) rc = - re = -.01 (-.10 to .10)	rp = -.09** rg = .03 (-.16 to .25) rc = - re = -.17 (-.08 to -.26)	rp = .29** rg = .46 (.31 to .61) rc = - re = .17 (.07 to .26)	rp = .32** rg = .42 (.27 to .57) rc = - re = .25 (.16 to .34)
Borderline personality total score	rp = -.19** rg = -.12 (-.28 to .04) rc = - re = -.19 (-.10 to -.28)	rp = -.35** rg = -.30 (-.13 to -.45) rc = - re = -.38 (-.30 to -.46)	rp = .18** rg = .16 (.01 to .30) rc = - re = .18 (.08 to .27)	rp = .35** rg = .44 (.31 to .57) rc = - re = .28 (.19 to .37)

two-tailed.

95% confidence intervals are in the brackets; those which do not contain zero are deemed to be significant, and are in bold text.

* $p < .01$.

** $p < .001$.

model with the lowest chi-square per-degree of freedom and lowest AIC was deemed to be the best fitting model. For 18 of the 20 bivariate genetic models computed, the AE model was found to have the best fit, indicating that these correlations are due to common genetic and unique environmental factors. For two of the bivariate genetic models, a CE model was found to be the best fitting model suggesting that the phenotypic correlation is due to environmental factors (both common and unique).

Table 1 lists the results of the bivariate genetic analyses. Correlations with a 95% confidence interval (values within the brackets) that do not include zero are considered to be statistically significant. Similar to the results reported by Schermer, Martin, Martin, Lynskey, and Vernon (2013) for the relationships between humor styles and a general factor of personality, the results reported in the present study were very similar when the uncorrected and the corrected (age and sex regressed) data were analyzed. Because of the similar results, the uncorrected results are presented in the present study. As reported in Table 1, only four of the five unique environmental correlations were significant for the affiliative humor style with the borderline personality scores and none of the genetic correlations reached significance. For the self-enhancing humor style, significant negative genetic correlations were found with affect instability, identity disturbance, and the total borderline personality score. A significant negative common environment correlation was found between self-enhancing and negative relationships. All of the unique environmental correlations were found to be significant and in the negative direction. Only two of the correlations between the aggressive humor style and borderline personality scales were found to have significant genetic correlations, in particular with self-harm and the total borderline score. All of the correlations with aggressive humor and borderline scales had significant unique environmental correlations except with identity disturbance. For the self-defeating humor style, four of the five genetic correlations were significant, with the exception being the relationship with negative relationships which had a significant common environment correlation. All of the unique environmental correlations between self-defeating humor and borderline personality scores were significant.

4. Discussion

The present study examined the correlations between humor styles and borderline personality disorder dimensions at the phenotypic,

genetic, and environmental levels. In general positive humor styles (affiliative and self-enhancing) were found to be negatively related to borderline personality whereas the negative humor styles (aggressive and self-defeating) were found to be positively related to borderline personality. Many of the phenotypic correlations were found to also have significant genetic correlations, especially with borderline personality and self-enhancing and self-defeating humor styles. These results may not be entirely surprising as both borderline personality scores (Distel et al., 2009) and humor styles (Vernon et al., 2008) have been found to have significant genetic correlations with personality factors, as measured using the Big Five model. What may be somewhat more surprising were the stronger correlations found with borderline personality scores and the self-enhancing and self-defeating humor styles. Martin et al. (2003) describe these two humor styles as focusing on the self and reflect behaviors which may be extreme. For example, an item from the self-defeating scale reads, "I often go overboard in putting myself down when I am making jokes or trying to be funny" (Martin et al., 2003, p. 59). This style of humor may be tapping into the borderline feature described by Morey (1991) as reflecting poor control. Future research may want to include measures of self-control or impulse control to further understand the relationship.

Another finding from the present study which was of interest concerned the significant common environment correlations between the borderline personality scale, negative relationships, and the self-enhancing and self-defeating humor styles. These results may be due to the nature of the items of the negative relationship measure as the items ask individuals about their relationship history and their sense of past betrayals (Morey, 1991), content which may stem from intra-family experiences. For example, self-enhancing humor includes items such as, "If I'm by myself and I'm feeling unhappy, I make an effort to think of something funny to cheer myself up" (Martin et al., 2003, p. 58). An individual who endorses this type of item may have been less influenced by past negative relationships. For example, Zhao, Wang, and Kong (2014) reported a positive correlation between perceived social support and self-enhancing humor style and a negative correlation with self-defeating humor. Possibly the perception of social support may reduce the negative cognitions associated with borderline personality disorder.

It is important to note that a non-psychiatric sample of participants was used in this study, and we were therefore measuring these borderline personality disorder related tendencies within a normal range.

Although we assume that these results may be extrapolated to clinical populations, further research is needed to determine whether the same associations are found in individuals with diagnosed borderline personality disorder. Another limitation of the present study is the correlational nature of the results. Although the results suggest common genetic and/or environmental factors may influence the covariance of humor styles and borderline personality disorder dimensions, causal statements cannot be made as to which construct possibly influences the other. One difficulty in assessing that question would be the timing of when borderline personality disorder is diagnosed, as Trull (2001) states that borderline personality disorder typically develops in early adulthood. To investigate how humor styles and borderline personality disorder are related over time, longitudinal studies commencing during adolescence or early adulthood may be necessary. In a longitudinal model, the possible protective role of the positive humor styles, in particular self-enhancing humor, could be investigated. Although the present study cannot make causal statements as to how borderline personality disorder and humor styles may influence each other, the study is possibly the first to demonstrate that some of the phenotypic (observed) correlations can be attributed to common genetic and/or environmental factors.

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