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A behavioral genetic investigation of humor styles and their correlations with the Big-5 personality dimensions

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Abstract

Four hundred and fifty six pairs of adult twins completed the Humor Styles Questionnaire – which measures two positive and two negative styles of humor – and the NEO-PI-R, which measures the Big-5 personality traits. Univariate behavioral genetic model-fitting revealed that individual differences in the two positive humor styles (affiliative and self-enhancing) and all five of the Big-5 traits were largely attributable to genetic and nonshared environmental factors, whereas individual differences in the two negative humor styles (self-defeating and aggressive) were largely attributable to shared and nonshared environmental factors. Several significant phenotypic correlations were found between each of the four humor styles and the Big-5, and multivariate behavior genetic analyses revealed that these observed correlations were themselves entirely attributable to genetic and nonshared environmental factors.

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1. Introduction

To what extent are individual differences in sense of humor caused by genetic or environmental factors? Previous behavioral genetic (BG) investigations addressing this question have been quite

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limited and have yielded different results depending on how the sense of humor construct is conceptualized and measured.

One approach taken by past researchers is to conceptualize sense of humor in terms of humor appreciation, which is typically assessed by having participants rate the perceived funniness of a series of jokes or cartoons. Correlational research has shown that appreciation ratings of various types of humor stimuli are associated with such traits as tolerance for ambiguity, sensation-seeking, and conservatism (Ruch, 1992), but are generally unrelated to individuals' tendencies to produce or engage in humor and laughter in their daily lives (Köhler & Ruch, 1996).

By comparing the relative similarity of monozygotic (MZ) and dizygotic (DZ) twins, BG studies attribute individual differences in traits as being due to genetic differences between people and/or to one of two types of environmental influences: referred to as shared or nonshared. Shared environmental factors are those aspects of the environment that twins have in common – factors such as being raised by the same parents in the same home – these factors contribute to similarity between twins. Nonshared environmental factors refer to things that one twin experiences and that his or her co-twin does not experience – twins, for example, might develop friendships with different groups of people – these factors contribute to differences between twins. In an early BG study, Nias and Wilson (1977) found moderate correlations between 100 pairs of MZ and DZ twins on funniness ratings of four categories of cartoons, but the MZ and DZ correlations did not differ in magnitude, suggesting a lack of genetic influence. Subsequent model-fitting analyses of the same data (Wilson, Rust, & Kasriel, 1977) indicated that individual differences in funniness ratings of nonsense, satirical, and sexual cartoons were entirely attributable to shared and nonshared environmental factors (referred to as a CE model), whereas differences in the appreciation of aggressive cartoons were attributable to additive genetic and nonshared environmental factors (an AE model). More recently, Cherkas and colleagues (2000) similarly found evidence of a CE model in a study of 127 pairs of female MZ and DZ twins who rated the funniness of five Gary Larson *Far Side* cartoons.

In summary, the limited research conducted to date suggests that, when sense of humor is defined in terms of the appreciation of particular types of jokes and cartoons, individual differences are primarily due to differences in the shared and nonshared environment and not to genetics. Thus, people's tendency to enjoy these types of humorous stimuli seems to develop largely as a consequence of learning experiences both within and outside the family environment, rather than being innate.

As an alternative to the humor appreciation approach, most recent research on individual differences in sense of humor has made use of self-report scales to assess the degree to which individuals laugh and smile frequently, notice and enjoy humor, use humor to cope with stress, and maintain a cheerful and playful outlook (e.g., Martin, 1996). These types of measures tend to be associated with extraversion, and have been found to predict individuals' humor creation abilities, peer ratings of sense of humor, and tendency to produce humor in daily life (for reviews, see Martin, 2007; Ruch, 1998). Importantly, these self-report humor tests tend to be uncorrelated with measures of humor appreciation (Köhler & Ruch, 1996), indicating that these two measurement approaches assess quite different aspects of sense of humor.

Although the existing research is again very limited, previous BG investigations using self-report measures of humor generally suggest that variance in these traits is primarily due to both genetics and the nonshared environment (an AE model). In an early study involving more than