Personality and Individual Differences 63 (2014) 6–9

Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Does relative bargaining power explain the general factor of personality?

John C. Loehlin *

Department of Psychology, The University of Texas at Austin, Austin, TX 78712-0187, USA

ARTICLE INFO

Article history:
Received 13 December 2013
Accepted 11 January 2014
Available online 12 February 2014

Keywords:
General factor of personality
Relative bargaining power
Self-perceptions
Physical attractiveness
Human evolution

ABSTRACT

A model by Lukaszewski proposed that self-perceived relative bargaining power was the source of the mutual correlation among personality traits that underlies the so-called "general factor of personality." Portions of Lukaszewski's model were tested in a larger and broader data set than his, the Eugene-Springfield (Oregon) Community Sample. The model fit the data reasonably well, but the obtained values of its parameters suggested that relative bargaining power, at least as estimated here, would make only a weak contribution to a general factor of personality.

1. Introduction

There has been interest recently in a "General Factor of Personality" (GFP), described as the "Big One" by Musek (2007). The topic has been reviewed by Just (2011) and by Irwing (2013). A general factor can be extracted from any correlation matrix of personality measures, as the first principal component. However, the interpretation of such a factor remains controversial. Is it an artifact of overlapping lower-level measures (Ashton, Lee, Goldberg, & de Vries, 2009) or a basic dimension of human evolution (Rushton, Bons, & Hur, 2008)? Is it consistent across various personality inventories? (No—Hopwood, Wright, & Donnellan, 2011; Mostly yes—from the same data set—Loehlin, 2012.) Is it a purely evaluative dimension, with little if any substantive meaning? (Yes—Pettersson, Turkheimer, Horn, & Menatti, 2012; No—Erdle & Rushton, 2011). Is it evident in self-ratings but not in those by others? (Yes—Biesanz & West, 2004; No, only evident in others' ratings—Rauthmann & Kolar, 2010; present in both—Zawadzki & Strelau, 2010—but this may largely reflect method factors—Riemann & Kandler, 2010).

One evidence that the GFP is more than a simple statistical artifact is provided by behavior genetic analyses. The heritability of the GFP has been estimated in at least eight twin samples. The estimates fall in the range .39 to .53, with a median value of .46 (Loehlin, 2011; Loehlin & Martin, 2011; Rushton et al., 2008; Rushton et al., 2009; Veselka, Schermer, Petrides, & Vernon, 2009). These are values typical of those found for broad personality factors in twin studies (Bouchard & Loehlin, 2001). Results from an adoption study, however, found that genetically related family members were only slightly more similar on a GFP than genetically unrelated family members—who were barely similar at all (Loehlin & Horn, 2012). This suggests that with respect to the additive part of genetic variance (the part transmitted from parents to offspring) heritability must be quite low—and also that GFPs are not a function of family environments.

There have been efforts to place a biologically-based GFP into an evolutionary framework. Rushton et al. (2008) suggested that the GFP represents a set of characters conducive to successful reproduction, and thus selected together over evolutionary time. Lukaszewski (2013) cast this general notion into a specific model. Drawing on a suggestion of Tooby and Cosmides (1990), he proposed that the key element in trait covariation among self-ratings is "Relative Bargaining Power" (RBP). Specifically, the model holds that an individual forms a concept of his or her relative bargaining power, based on factors such as physical attractiveness in both sexes and physical formidability in males, and calibrates his or her self-judgments accordingly on traits such as extraversion, emotionality, fear of rejection, approach motivation, interpersonal trust, attachment anxiety, and the like. Such calibration is held to account for the mutual intercorrelation of personality traits, and thus could be the source of a general factor of personality.

Lukaszewski fit his model to data from 110 male and 99 female university undergraduates. He obtained paths in the range .26 to .58 between self-perceived RBP and various personality traits, a path of .58 in men and .57 in women between self-perceived attractiveness and self-perceived RBP, and a smaller path of .25 in men and a nonsignificant path of .16 in women between self-perceived physical formidability and self-perceived RPB. In addition, there were paths in the range of .31 to .57 between measured physical strength and rated attractiveness and their self-perceived equivalents.

* Tel.: +1 512 475 7008.
E-mail address: loehlin@utexas.edu

http://dx.doi.org/10.1016/j.paid.2014.01.024
0191-8869/

Data permitting the evaluation of a portion of Lukaszewki's model were available from a study of personality inventories that was carried out in an Oregon community sample (Grucza & Goldberg, 2007). Two inventories measuring the Big Five personality dimensions, the Big-Five Inventory (BFI) and the Mini-Markers of the Big-Five (MM), were administered in the Oregon study. Both were completed by the participants to describe themselves, as well as by acquaintances to describe them. Along with the administration of each inventory, the participants and the acquaintances rated the individual's physical attractiveness. Data were available for 281 men and 377 women, a substantially larger sample than Lukaszewski's. The Big Five traits of Extraversion and Emotional Stability were two of the personality traits included in Lukaszewski's study. Thus replication of portions of the Lukaszewski model could be undertaken in a sample larger and broader than his, consisting of community residents of a variety of ages and backgrounds, not just university undergraduates. The Oregon participants were of above-average education and socioeconomic status (and so, presumably, were the undergraduates). As noted, the data included only two of the personality traits measured by Lukaszewski. However, the study had the advantage that measurement of these was not restricted to self-report, but included others' ratings of these traits as well. A potential weakness of Lukaszewski's design is that it explains the correlations among self-rated traits by a self-rated RBP, permitting artifacts like temporary mood and self-presentation bias to enter in.

One limitation of the present study is that a measure of physical strength was not included, so that the model for males is not fully replicated—Lukaszweski found physical formidability not to be a significant factor for women's RBP. Thus the data permit evaluation of the model for women, and if it does not fit for men, the implications of this omission can be further evaluated. Another limitation is that no explicit measure of relative bargaining power was available for the present sample. As noted below, a path in the path model was set according to one obtained by Lukaszewski from his data, in order to permit comparison of other aspects of the model.

2. Method

2.1. Participants

These were community residents in the cities of Eugene and Springfield in western Oregon, who had agreed to complete personality inventories by mail over a period of several years, for honoraria ranging from $10 to $25. The data used in the present study were gathered in the fall of 1998. The participants ranged in age from 18 to 85 in 1995 at the beginning of the project, with a median age of 48. A total of 291 men and 395 women completed the questionnaires and attractiveness ratings on which the present model fitting was carried out. For most of them (281 men and 377 women), one to three persons who knew the participants well completed corresponding questionnaires and ratings to describe them. Further details concerning the sample may be found in Grucza & Goldberg, 2007.

2.2. Measures

The questionnaires were the Big-Five Inventory (Benet-Martinez & John, 1998) and the Mini-Markers of the Big-Five (Saucier, 1994). Thus there were four self-report measures—two for each of the Big Five dimensions Extraversion and Emotional Stability that were included in Lukaszewski's personality syndrome. The ratings by others for a given individual were averaged to provide a corresponding set of four measures—i.e., Extraversion and Emotional Stability from each questionnaire. Finally, physical attractiveness ratings were made in conjunction with each questionnaire, yielding two self- and two others' ratings: a total of 12 measures altogether.

2.3. Analyses

Correlation matrices among the 12 measures were calculated separately for men and women. They were fit by a two-group structural equation model in LISREL 8.8 that followed the relevant portions of Lukaszewski's. To deal with the absence of an explicit measure of relative bargaining power in the present data set, the path between the latent variables of physical attractiveness and relative bargaining power was fixed to a value based on the correlation obtained by Lukaszewski in his data. Specifically, the path was set to a value yielding a correlation equal to the observed correlation between these two measures divided by the square roots of their reliabilities (as given in Lukaszewski, 2013); i.e. the values of .68 for men and .60 for women were each divided by $\sqrt{.93} \times \sqrt{.88}$, and the relevant model paths set to produce the corresponding values of .7517 and .6632. A covariance between residuals of equivalent measures across the two tests was included in the model, equated over the six pairs of measures to avoid difficulties in reaching a determinate solution. The fit of a model constraining parameters to be equal for men and women was compared with that of a model allowing them to be different. For the former, the mean value for the two sexes was used in setting the fixed path.

3. Results

The correlations among the 12 measures for men and for women in the Oregon data are shown in Table 1, with men above and women below the diagonal. These are the correlations to which the models were fit.

The correlations among the four measures of each variable—i.e., the four measures of Extraversion, of Emotional Stability, and of Physical Attractiveness—are shown in boldface type. It is evident that most of them are substantial. In particular, the correlations between the Mini-Markers and the BFI for a given self- or other-rated measure are in the .80s and .90s for Extraversion and Attractiveness, and in the .60s and .70s for Stability—providing evidence for reliability of the measurement. Correlations between self- and others' ratings are somewhat lower, but still substantial—typically in the .60s for Extraversion, in the .40s for Stability, and in the neighborhood of .30 for Attractiveness. Elsewhere in the table the correlations tend to be low and scattered, although there is a group of low but positive *r*s for the women between Extraversion and Attractiveness, shown in italics. There are similar, but smaller, *r*s for the men's self-ratings, but they do not include the ratings by others.

A model specifying invariance of parameters between males and females provided a reasonably good fit to the data. It is shown in Fig. 1. It differs from Lukaszewsi's in that (1) there are only two personality measures and no physical strength measure or direct measure of RBP; that (2) each measured variable in the model is measured twice; and (3) that it is a latent variable model, distinguishing between surface measurements and the true theoretical variables assumed to underlie them.

The model in Fig. 1 fit the data fairly well. The root-mean-square error of approximation (RMSEA) was .060, with a 90% confidence interval from .050 to .069—values of RMSEA under .08 are typically considered to represent acceptable fits (e.g., Browne & Cudeck, 1993). Six fit indexes provided by LISREL were in the range .92 to .97; values above .90 are usually considered satisfactory. With these sample sizes, the model could be rejected as fitting ex-