

The Unusual Suspect: The General Factor of Personality (GFP), Life History Theory, and Delinquent Behavior

Dimitri van der Linden
Erasmus University Rotterdam

Curtis S. Dunkel
Western Illinois University

Kevin M. Beaver
Florida State University and King
Abdulaziz University

Marissa Louwen
Erasmus University Rotterdam

The General Factor of Personality (GFP) emerges from the intercorrelations between personality traits and may reflect socially desirable behavior and social effectiveness. In the present study we examine the relation between the GFP and delinquent behavior in a large sample ($n = 1345$) of inmates in the United States. The GFP has been linked to individual differences in Life History Strategy either favoring relatively high parental care (and a higher GFP) or high mating effort (and a lower GFP). The results show that inmates with lower GFP scores were more violent, showed more delinquent behavior, were younger when they were first arrested, were more likely to recidivate, and had experienced various psychological and social problems during their lives. The GFP and a proxy measure of general intelligence overlapped in their relation to delinquency, but results also showed that each measure accounted for unique variance in the array of delinquency measures. Overall, the present findings underline the potential relevance of the GFP as a predictor of delinquent behavior.

Keywords: crime, delinquency, evolutionary psychology, general factor of personality, life history theory

Knowing the antecedents of delinquent behavior is one of the major aims in criminological research. Although many studies have been conducted on the environmental factors that contrib-

ute to the development of delinquency, relatively few studies have focused on individual differences and biological factors. The few studies that took these factors into account clearly show that delinquent behavior is related to personality and that it has a heritable component (e.g., Mason & Frick, 1994; Wilson & Herrnstein, 1985). Also, in psychiatry the link between personality and delinquent behavior was acknowledged several decades ago. For example, the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM)* since the 1950s knows a category "antisocial personality disorder" (formerly: sociopathic personality disturbance).

Yet, despite these earlier studies suggesting a role of environmental (e.g., SES) as well as biological factors, mainstream literature in criminology tends to place comparatively more emphasis on environmental and social factors, whereas biological factors and individual differences such as personality are considered to be less relevant.

This article was published Online First October 6, 2014.
Dimitri van der Linden, Institute of Psychology, Erasmus University Rotterdam; Curtis S. Dunkel, Department of Psychology, Western Illinois University; Kevin M. Beaver, College of Criminology and Criminal Justice, Florida State University, and Center for Social and Humanities Research, King Abdulaziz University; Marissa Louwen, Institute of Psychology, Erasmus University Rotterdam.

The original collector of the data, ICPSR, and the relevant funding agencies bear no responsibility for use of this collection. They are also not responsible for our interpretations based upon their original data collection. Because this study uses ICPSR resources, it is requested to send to ICPSR bibliographic citations for each completed manuscript or thesis abstract.

Correspondence concerning this article should be addressed to Dimitri van der Linden, Institute of Psychology, Erasmus University Rotterdam, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands. E-mail: vanderlinden@fsw.eur.nl

One mainstream criminological theory that *did* emphasize the role of individual differences in delinquent behavior is Gottfredson and Hirschi's (1990) *General Theory of Crime*. They stated that lack of self-control, in combination with criminal opportunity, is the main cause underlying delinquent behavior. Gottfredson and Hirschi acknowledged the heritability of criminal behavior, but in their theory, self-control is assumed to be mainly determined by socialization influences at an early age (up-bringing, education, etc.) instead of reflecting a heritable personality trait.

More recently, personality and biological factors have seemed to gain a bit more traction in criminological research. For example, Romero, Luengo, and Sobral (2001) examined the basic dimensions in Eysenck's model of personality and found that high psychoticism, high extraversion, and high neuroticism all were associated with an increased probability of engaging in delinquent behavior. Jones, Miller, and Lynam (2011) published a large meta-analytic review including 33 studies with a total n of approximately 10,000 participants. They showed that three of the well-known Big Five personality dimensions were related to antisocial behavior and that all Big Five dimensions were related to violent behavior.

These previous studies contributed to insight into the role of personality in antisocial, delinquent, and aggressive behaviors. One general limitation, however, is that in many cases a unifying theoretical framework for explaining the link between personality and delinquent behavior is missing. One possible reason for this lack of a unifying view is that the personality dimensions that are used in previous studies are often assumed to be conceptually independent from each other (e.g., Goldberg, 1990). Consequently, separate explanations for each individual relation between a personality dimension and delinquent behavior have to be developed. For instance, the presumed lower cortical arousal of extraverts has been held responsible for the tendency to seek 'thrilling' activities (Eysenck, 1977), whereas less-conscientious individuals have been hypothesized to engage more often in delinquent behavior because of their lack of self-control (Jones et al., 2011).

In the present study, we adopt a different approach in testing personality and delinquent

behavior by examining the role of the so-called General Factor of Personality (GFP; Figueredo, Vásquez, Brumbach, & Schneider, 2004; Rushton, Bons, & Hur, 2008). The notion of a GFP is based on the observations that personality dimensions typically tend to correlate, leading to a relevant proportion of shared variance among them. Initially, it was assumed that this general factor reflected not much more than response bias that is inherent to self-report measures (e.g., faking, or inflated sense of self; e.g., Anusic, Schimmack, Pinkus, & Lockwood, 2009; Bäckström, Björklund, & Larsson, 2009). Recently, however, several researchers have emphasized that the GFP may reflect a continuum of *true* socially desirable behavior (Dunkel, Kim, & Papini, 2012; Figueredo et al., 2004, 2006; Loehlin & Martin, 2013; Musek, 2007; Rushton & Irwing, 2011; Van der Linden, Te Nijenhuis, & Bakker, 2010). In this view, individuals scoring high on the GFP display a combination of socially desirable traits that enhance social interaction. Some researchers have even referred to the GFP as a social effectiveness factor (e.g., Dunkel & Van der Linden, 2014; Loehlin & Martin, 2013) that facilitates the attainment of social goals and that has a relatively large overlap with constructs such as social or emotional intelligence (Van der Linden, Tsaousis, & Petrides, 2012).

It has also been hypothesized that the lower end of the GFP continuum is associated with various social or psychological problems and with tendencies toward delinquent behavior (Figueredo et al., 2004, 2006; Rushton & Irwing, 2011). In line with this, Jones et al. (2011) concluded that individuals who tend to engage in criminal behavior, on average, display a mix of socially undesirable behaviors. Jones et al. (2011) also found that the Big Five dimensions Openness (O), Conscientiousness (C), Extraversion (E), and Agreeableness (A) were negatively related to delinquent behavior, whereas Neuroticism (N) showed a positive relationship. Such a pattern of findings fits with the notion of a GFP, because the loadings of the Big Five on the GFP have been found to display an O+, C+, A+, E+, N- pattern too (Van der Linden et al., 2010). Nevertheless, no previous studies have directly tested the association between the GFP and delinquent behavior.

Life History Theory and the GFP

One possible explanation for *why* personality and delinquency might be related can be derived from theories about the evolutionary origin of the GFP (Figueredo et al., 2004, 2006; Rushton & Irwing, 2011). Of these, Life History Theory provides a potentially unifying theory on individual differences. Specifically, several studies support the notion that the GFP may be just one of the many manifestations of the so-called Life History strategy (Dunkel & Decker, 2010; Figueredo et al., 2004, 2006; Rushton et al., 2008; Rushton & Irwing, 2011; Van der Linden, Figueredo, De Leeuw, Scholte, & Engels, 2012).

Life History (LH) Theory is a midlevel evolutionary account of systematic differences in evolved reproductive strategies (Wilson, 1975). The theory places reproductive strategies on a continuum from fast to slow. The fast LH strategy is characterized by high mating effort and producing many offspring with relatively little parental care. A slow LH strategy is characterized by a lower investment in mating effort and in producing offspring, but relatively high levels of parental care to ensure survival of the offspring into reproductive age. In its early stages, LH Theory was mainly applied to describe differences between species (Wilson, 1975). Examples of animals with a fast LH strategy are some types of fish (e.g., salmon) that have reproductive strategies involving the production of many fertilized eggs but no parental care. Elephants are a good example of animals using a slow LH strategy by having large intervals between offspring and nurturing their young for several years. It has been argued and shown, however, that LH Theory can also be applied in explaining individual differences in humans (Rushton, 1985). Although, compared with many other species, all humans typically display slow LH strategies it has become evident that during human evolution, individual lineages have occupied niches favoring either higher mating effort, more offspring and lower parental care, or less mating effort and offspring and more parental care (Figueredo et al., 2006; Rushton, 1985, 2004).

In humans, the type of LH strategy is related to a broad pattern of individual differences such as complexity and cohesiveness of social networks, speed of maturation, religiosity, well-being, and importantly, also the distribution of

personality traits (Figueredo et al., 2006). Several studies have confirmed that the GFP occupies the same factor space as other life history indicators (e.g., Figueredo et al., 2004, 2006). A high GFP score is associated with a slow strategy, because the tendency for pro-social behavior, and social cohesion and effectiveness is one of the core features of such a strategy. Figueredo and Rushton (2009) stated “that we should therefore expect life history evolution to favor the evolution of the GFP, because the conditions favoring slow life history strategy are those favoring the cooperative sociality of the GFP” (p. 556). There are also several slightly alternative explanations stating that in primates in general, increased sociality and social complexity may have produced a tendency toward a slower LH strategy (Dunbar, 2010; Janson, van Schaik, 1993). So, in these explanations the increased sociability is considered a causal factor instead of a manifestation of a slow LH strategy. In either of the explanations however, the GFP as a social effectiveness factor can be expected to be associated with a slower LH strategy.

Supporting evidence that the GFP is related to evolutionary selective pressure comes from studies showing that the GFP has a substantial genetic component (Figueredo et al., 2004; Figueredo & Rushton, 2009; Loehlin, 2011; Rushton et al., 2008; Veselka et al., 2009). Moreover, a relevant proportion of this genetic component consists of nonadditive genetic variation. Natural selection deletes additive genetic variation faster than nonadditive genetic variation. Thus, the findings on the genetics of the GFP are in line with the notion that it is a fitness-related trait that has evolved under recent natural selection.

Penke, Denissen, and Miller (2007) described different evolutionary models for individual differences in personality, namely, selective neutrality, balancing selection by environmental heterogeneity, and mutation selection balance. Although research on the topic is ongoing, current evidence seems to indicate that the GFP has been under multiple selective forces including balancing selection and mutation selection balance. For example, Figueredo and Rushton (2009) hypothesized that the GFP was subjected to directional selection in a similar way as cognitive intelligence. In line with this, using Cloninger's personality dimensions, Verweij et al., (2012)

found that direct inbreeding indicators (i.e., runs of homozygosity) were negatively related to the GFP. This underlines that individual variation in the GFP is related to mutation load (Figueredo & Rushton, 2009; Verweij et al., 2012).

Life History Strategy and the GFP-Delinquency Relation

Particularly relevant for the present study is that previous research has revealed that a fast LH strategy is accompanied with higher probability of engaging in delinquent behavior. Hackman and Hruschka (2013) reported that state-level variation in homicide in the United States positively relates to fast LH strategy indicators. Templer and Rushton (2011) showed that INTERPOL data on the national crime level are related to national differences in LH strategy indicators. In addition, several studies have reported that indicators of a fast LH strategy relate positively to self-reported delinquency (Bogaert & Rushton, 1989; Wenner, Bianchi, Figueredo, Rushton, & Jacobs, 2013). These correlational findings are buttressed by experimental findings in which the manipulation of LH cues caused changes in criminal intent (Dunkel, Mathes, & Beaver, 2013).

If the GFP is indeed one of the indicators of LH strategy, it can be expected that low GFP scores are associated with more delinquent tendencies. This is a relevant prediction from LH theory that, to date, has not been tested using subjective as well as objective data. Therefore, in the present study we will test the presumed GFP-delinquency relation in a large sample of inmates from a project of Megargee and Carbonell (1996), aimed to study the antecedents and correlates of violent criminal behavior. Because all participants in the sample were convicted for a crime, an important asset of the present study is that different sources of information about delinquent behavior were available such as self-reports, assessments from psychologists and probation workers, and objective criminal records. Moreover, the present sample allowed us to test whether inmates with lower GFP scores show more signs of previous social and psychological problems, as predicted by LH Theory (Bogaert & Rushton, 1989; Figueredo et al., 2006; Rushton, 1985, 2004).

Delinquency, Personality, and General Intelligence

In the criminological literature, another well-known predictor of delinquent behavior is general intelligence (e.g., Hirschi & Hindelang, 1977; Wilson & Herrnstein, 1985). Regarding this, a relevant question is whether the GFP and intelligence are intertwined as possible antecedents of delinquency. The reason to expect that this is the case can be derived from LH Theory as well because it predicts that the GFP and intelligence share variance; They are sometimes, just as delinquent tendencies, *both* assumed to be indicators of LH strategy (Figueredo et al., 2006; Rushton, 1985). It has to be noted that the status of intelligence as an indicator of LH strategy is still under debate. For example, at the population level it has been found that slow LH strategy indicators are associated with higher levels of intelligence (Meisenberg & Woodley, 2013). Yet, at the individual level, the results regarding the associations between LH-indicators and intelligence are mixed at best. A recent study on intelligence and, mainly subjective, measures of LH strategy even seem to indicate that there is no correlation at all (Woodley, 2011). Meisenberg and Woodley (2013) have referred to such contradictory findings as the 'Rushton paradox.'

When it comes to associations between the GFP and intelligence, findings are also mixed. Some studies found clear associations between the two variables (e.g., Dunkel, 2013; Dunkel, De Baca, Woodley, Fernandes, 2014; Loehlin, 2011; Irwing, Booth, Nyborg, & Rushton, 2012; Schermer & Vernon, 2010). Other studies, however, found no significant correlation between the GFP and intelligence (Rushton et al., 2009; Schermer, Carswell, & Jackson, 2012). Bearing in mind the current ambiguity surrounding the associations between LH indicators, the GFP, and intelligence, we considered it informative to include tests on the overlap between the GFP and a proxy-measure of intelligence (i.e., the Stanford Achievement Test) in their relation to delinquent behavior.

Method

Sample

The sample was collected between 1970 and 1972 (Megargee & Carbonell, 1996) as part of a

large project to explore the antecedents and correlates of violent criminal behavior. The sample consisted of 1345 adult male offenders admitted to the Federal Correctional Institution in Florida. The mean age was 22 years (SD 2.30, range 15–32 years); 63.3% of the inmates were Caucasian, 35.3% were African American, and 1.4% other.

Procedure

At entry in the institution, multiple sources of information on the inmates were collected. Administrative records of the inmates were obtained, such as Case reports, the Presentence Investigation Report (prepared by the federal probation officer), and Arrest Reports. These administrative data did not only provide insight into the delinquency history of the inmate, but also on his violent behavior. Usually within two weeks of intake, each inmate was administered an extensive battery of tests (e.g., personality, intelligence). Care was taken that inmates provided valid answers to the test. For example, after completing one of the personality surveys, the psychologist selected 6 random items of the survey and asked how the inmate had responded. If the inmate was unable to recall his answers, responses were retested. Approximately three weeks after intake, the inmates were interviewed by their team psychologists. In the interview, the psychologists assessed the life history of social problems and behaviors.

Measures

Personality. The California Psychological Inventory (CPI) consists of 20 scales. The main scales are Dominance, Capacity for Status, Social Presence, Independence, Empathy, Responsibility, Socialization, Self-control, Good Impression, Communality, Well-being, Tolerance, Achievement via Conformance, Achievement via Independence, Intellectual Efficiency, Psychological-Mindedness, Flexibility, and Femininity/Masculinity.

A viable GFP has been shown in the CPI in several previous studies (cf. Rushton & Irwing, 2011). Because the CPI was designed to measure interpersonal behavior and dispositions relevant to social interaction, it has been argued that the CPI may be particularly suited to assess the nature of the GFP as a social effectiveness factor (Loehlin & Martin, 2013).

The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used clinical instrument to measure personality (Butcher, 2001). The survey contains eight clinical scales assessing Hypochondriasis, Depression, Hysteria, Psychopathic deviation, Paranoid thinking, Psychastenia, Schizophrenia, and Mania. Two other scales measure Introversion–Extraversion and Masculinity–Femininity (sex role identification). Because the scales are primarily intended to measure mental disorders and problematic personality traits, a high score on the MMPI indicates personality problems. Several previous studies have confirmed that a clear general factor of personality is present in the MMPI (Rushton & Irwing, 2011).

Social desirability measures. The CPI as well as the MMPI contain additional validation scales to assess response style biases. In the CPI this is the Good Impression scale and in the MMPI this is the Lie scale. Although these scales were originally developed to measure socially desirable response bias, it has been shown that such scales also contain a substantive component reflecting true socially desirable behavior (Ones, Viswesvaran, & Reiss, 1996). In this sense, they may partly tap the same variance in personality measures as the GFP. Nevertheless, because one of the main alternative explanations for the GFP is that it merely reflects socially desirable response bias (Bäckström et al., 2009), we also examined GFP–delinquent behavior associations controlling for these social desirability scales.

Proxy of general intelligence. The data from the project contain some indicators of the inmates' general intelligence. The data that were available for most inmates were from the Stanford Achievement Test (SAT). The SAT is a test of academic achievement with nine scales, each of which measures an aspect of academic ability (e.g., reading comprehension). Although the SAT is an achievement test, it can be considered a relatively good proxy for general intelligence (e.g., Merrifield & Hummel-Rossi, 1976). For example, it correlated $r = .73$ with the total score on the well-known and extensively validated General Aptitude Test Battery (GATB), which was administered to a subsample of the inmates ($n = 400$).

Violent behavior. At intake, FBI arrest records ("rap sheets") were used to classify in-

mates on violence potential, based on National Crime Information Center Uniform Offense Codes. In the original study of Megargee and Carbonell (1996), four categories were used: (a) Nonviolent, (b) Potentially violent (carried weapons and made threats but was never actually convicted for a violent crime), (c) Angry violent (main goal to injure victim), and (d) Instrumentally violent (violence as means to an end; e.g., robbery). Inmates were also classified on the same violence categories regarding their entry offense (henceforward: index offense). After 90 days in the institution, inmates were rated by the dormitory officers on violent behavior while institutionalized. The following classification was used: (a) nonviolent, (b) Disruptive, (c) Violent.

Criminal record. Based on the administrative information several objective indicators of the inmate's criminal behavior were obtained. Specifically, (a) total number of arrests, (b) age at first conviction, (c) whether the inmate showed recidivism on any prior crime, and (d) whether the inmate had a prior commitment after the age of 18.

Adjustments to prison life. During the first 90 days of institution, dormitory officers and work supervisors completed scales assessing the inmates interpersonal and institutional work adjustment.

History of adjustment and social problems. Based on the Presentence Investigation Reports (PSIs) prepared by the probation workers, the researchers of the original project developed a series of scales to quantify the information in the PSIs regarding history of adjustment and social problems. Each PSI was independently scored on these scales by two trained raters. In case of discrepancies, the raters discussed on the score until satisfactory degree of interrater reliability was obtained. To increase reliability even more, the scores of the two raters were combined to obtain the final score. In the present study we used the assessment of the broadest categories, indicating previous adjustment or social problems. Specifically, we used (a) school problems, (b) problems with interpersonal relations, (c) childhood maladjustment and deviance, (d) adult maladjustment and deviance, and (e) social marginality.

Statistical Analyses

As in several previous studies, we operationalized the GFP as the first unrotated factor in the personality measures (Dunkel & Decker, 2010; Loehlin & Martin, 2013; Van der Linden et al., 2010) and calculated the factor scores with the regression method: The sum of the score on the specific personality dimensions multiplied by their corresponding factor loading on the first factor. The main results we report in the present study are based on the GFP from the principal axis (PAF) Factoring method. For validation purposes, however, we also extracted the GFPs using other methods such as maximum likelihood and principal component analysis.

Group variables (e.g., classification of violent behavior, prior commitment) were tested with Analysis of Variance (ANOVAs). In case of significant main effects we used Tukey's HSD post hoc tests for further analyses. Continuous and ordinal variables (e.g., number of previous arrests, socioeconomic status) were tested with correlational methods. We also tested (a) the potential influence of social desirability on the results, and (b) the overlap between the GFP and intelligence in their association with intelligence. In the ANOVAs, we conducted these additional analyses by using covariates (e.g., social desirability, intelligence). For the continuous and ordinal variables we used the partial correlation method, in which we, for example, tested the association between personality and delinquency measures controlling for either social desirability or intelligence on all variables in the analysis. Note that partial correlations test for associations between the unique variance of two variables after both have been corrected for one or more of the control variables.

Results

GFP Extraction

In the CPI, the first unrotated factor (using PAF) explained 44.8% of the variance in the scale scores. With the exception of the Flexibility (.12) and Masculinity/Femininity scales (.02), all scales loaded substantially and in the expected direction on the general factor namely toward social desirability (mean loading = .69, range .45 to .86). High scores on the general

factor in the CPI indicate high scores on the GFP.

In the MMPI, the first unrotated factor explained 45.7% of the variance in the scale scores. All scales loaded in the expected direction on the general factor. The loading of Hypomania was relatively low (.20), and the loading of the Masculinity/Femininity scale was modest (.30), but the remaining scales loaded substantially on the GFP (Mean loading = .69, range .51 to .87). Because of the high number of negatively valenced (clinical) scales, the sign of the general factor in the MMPI was reversed, so that higher scores on the MMPI-based GFP indicate lower socially desirable behavior.

The GFPs from the two personality inventories were strongly correlated ($r = -.55$), indicating consistency in the GFP over different measures. GFPs obtained with alternative methods (e.g., Maximum Likelihood, Principal Component Analysis, unit-weighted factors), correlated close to unity with the ones extracted with the PAF-method (average correlation was $r = .98$, range .969 to .995). This shows that GFP is robust across methods. Henceforward, we report the findings obtained with the PAF-extraction method.

Violent Behavior

An analysis of variance (ANOVA) with the classification of violent potential showed that there was an overall significant effect for the CPI-based GFP (see Table 1). Post hoc tests revealed that the nonviolent group had significantly higher GFP_{CPI} scores than the angry violent group (Cohen's $d = 0.24$). The MMPI-based GFP did not significantly differ in the classification on overall violence potential (see Table 2).

The GFP_{CPI} and GFP_{MMPI} displayed overall significant effects when inmates were classified on the level of violence of the index offense (see Table 1 for results GFP_{CPI}, and Table 2 for results GFP_{MMPI}). The pattern of post hoc tests was also the same for both measures of the GFP. Specifically, in both cases, inmates who were classified as nonviolent scored significantly higher on the GFP continuum than angry violent inmates (effect sizes were $d = 0.10$ and $d = -0.35$ for the GFP_{CPI} and GFP_{MMPI}, respectively).

Regarding the violence while institutionalized, there was a significant overall effect of the GFP_{CPI} (see Table 1). Post hoc tests showed that inmates who were classified as nonviolent had significantly higher GFP_{CPI} scores than in-

Table 1
Means (SDs), 95% Confidence Intervals, and ANOVA Results of CPI-Based GFP on Delinquent Behavior

	<i>n</i>	<i>M</i> (<i>SD</i>)	95% CI [low, high]	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Violence classification				(3, 822)	3.21	.03	.012
Nonviolent	305	0.11 (1.00)	[0.00, 0.22] ^a				
Potentially violent	60	−0.11 (0.98)	[−0.36, 0.14]				
Angry violent	348	−0.12 (0.96)	[−0.22, −0.02]				
Instrumentally violent	113	−0.03 (0.87)	[−0.29, 0.13]				
Violence entry offence				(3, 1109)	3.42	.02	.010
Nonviolent	999	−0.02 (0.98)	[−0.05, 0.08] ^a				
Potentially violent	65	−0.11 (1.00)	[−0.37, 0.16]				
Angry violent	51	−0.39 (0.94)	[−0.66, −0.11]				
Instrumentally violent	78	0.15 (0.93)	[−0.06, 0.36]				
Institutional violence				(2, 1125)	6.66	.001	.012
Nonviolent	657	0.08 (1.00)	[0.00, 0.15] ^b				
Disruptive	340	−0.07 (0.92)	[−0.17, 0.03]				
Violent	131	−0.23 (0.94)	[−0.37, −0.07]				
Recidivism?				(1, 967)	27.38	<.001	.028
No	479	0.16 (1.00)	[0.07, 0.25]				
Yes	490	−0.16 (0.93)	[−0.25, −0.08]				
Previous conviction?				(1, 966)	12.63	<.001	.013
No	601	0.09 (0.99)	[0.01, 0.17]				
Yes	368	−0.15 (0.94)	[−0.24, −0.05]				

^a Nonviolent group differed significantly from the angry violent group. ^b Nonviolent group differed significantly from the two other groups.

Table 2

Means (SDs), 95% Confidence Intervals, and ANOVA Results of MMPI-Based GFP Delinquent Behavior

	<i>n</i>	<i>M</i> (<i>SD</i>)	95% CI [low, high]	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Violence classification				(3, 870)	1.33	.26	.005
Nonviolent	305	−0.05 (0.96)	[−0.16, 0.06]				
Potentially violent	64	−0.11 (0.89)	[−0.34, 0.11]				
Angry violent	394	0.06 (0.98)	[−0.04, 0.16]				
Instrumentally violent	111	0.08 (1.00)	[−0.11, 0.27]				
Violence entry offence				(3, 1189)	2.73	.008	.008
Nonviolent	999	−0.03 (0.94)	[−0.09, 0.03] ^a				
Potentially violent	65	−0.01 (0.95)	[−0.22, 0.24]				
Angry violent	51	0.30 (0.94)	[0.04, 0.56]				
Instrumentally violent	78	0.16 (1.23)	[−0.12, 0.44]				
Institutional violence				(2, 1211)	12.85	<.001	.021
Nonviolent	691	−0.12 (0.93)	[−0.19, −0.05] ^b				
Disruptive	370	0.12 (0.99)	[0.02, 0.22]				
Violent	153	0.24 (1.03)	[0.07, 0.40]				
Recidivism?				(1, 1014)	8.53	.003	.010
No	570	−0.10 (0.93)	[−0.17, 0.02]				
Yes	509	0.09 (1.00)	[0.00, 0.17]				
Previous conviction?				(1, 1014)	4.14	.03	.005
No	635	−0.06 (0.97)	[−0.16, 0.02]				
Yes	381	0.08 (0.97)	[−0.02, 0.18]				

^a Nonviolent group differed significantly from the angry violent group. ^b Nonviolent group differed significantly from the two other groups.

mates who were disruptive ($d = 0.15$) or violent ($d = 0.32$). Analysis of the GFP_{MMPI} also revealed a significant overall effect (see Table 2). Post hoc analyses of the GFP_{MMPI} showed a similar pattern as with the GFP_{CPI}, in which nonviolent inmates scored, in this case, lower on the GFP than the disruptive ($d = -0.25$) and violent inmates ($d = -0.37$).

We conducted all the analyses as reported above again, but this time controlling for the designated social desirability scales, namely the Good Impression scale in case of the CPI and the Lie scale in case of the MMPI. All the effects that were significant in the previous analyses remained significant after controlling for social desirability (all $ps < .05$).

Criminal Record

The correlations in Table 3 show that inmates with scores indicating a higher GFP were older when they were arrested for the first time. In addition, they had a lower total number of arrests. The partial correlations, controlling for social desirability, remained significant for age of first arrest but the correlation with total number of arrest became nonsignificant.

ANOVAs revealed that inmates who showed recidivism on any prior offense had scores that were significantly lower on the GFP continuum than inmates without recidivism (Tables 1 and 2). Effect sizes were $d = 0.34$ and $d = -0.24$ for the GFP_{CPI} and GFP_{MMPI}, respectively. The same significant pattern was found for prior offenses after 18 (Tables 1 and 2). Effects sizes were $d = 0.25$ and $d = -0.14$, for the GFP_{CPI} and GFP_{MMPI}, respectively.

Conducting the same analyses on recidivism and prior commitment again, but this time also controlling for age (for obvious reasons), did not change the results or conclusions (all $ps < .05$). In addition, including social desirability as a covariate did not change the results on recidivism, but it did change the results regarding previous commitment. This latter effect was no longer significant for the CPI-based GFP, $F(1, 966) = 1.58, p = .21$.

Adjustment to Prison Life

GFP scores were significantly associated with the inmates' adjustments to prison life. Higher scores on the GFP_{CPI} were positively and significantly correlated with better adjustment to interpersonal relations and to working

Table 3
Bivariate and Partial Correlations Between GFPs and Delinquent Behavior and Previous Psychological and Social Problems

	CPI-GFP	CPI-GFP controlling for GI	CPI-GFP controlling for SAT	MMPI-GFP	MMPI-GFP controlling for Lie	MMPI-GFP controlling for SAT
Age at first arrest	.21***	.17***	.10**	-.11**	-.11**	-.06*
Total number of arrests	-.13***	-.06	-.09**	.08*	.08*	.06*
Interpersonal adjustment in prison	.14***	.16***	.08	-.18***	-.17***	-.17***
Work adjustment in prison	.20***	.14**	.10*	-.14***	-.11**	-.05
School problems	-.34***	-.32***	-.19***	.24***	.24***	.13**
Interpersonal relations problems	-.23***	-.20***	-.15***	.16***	.16***	.11*
Childhood maladjustment and deviance	-.22***	-.20***	-.13***	.17***	.17***	.12**
Adult maladjustment and deviance	-.22***	-.16***	-.18***	.12***	.12***	.10**
Social marginality	-.33***	-.20***	-.26***	.19***	.18***	.14**
Socioeconomic status	.38***	.38***	.17***	-.20***	-.20***	-.02
General delinquency factor	-.28***	-.18***	-.16***	.23***	.21***	.15***

Note. GI = Score on Good Impression scale; Lie = score on Lie Scale; SAT = Stanford Achievement Test. Primary correlations between GFP and delinquency/crime are in bold face.
* $p < .05$. ** $p < .01$. *** $p < .001$.

life in the institution. GFP_{MMPI} Scores were negatively related to both adjustment measures (see Table 3). This remained to be the case after controlling for the social desirability measures (also Table 3).

History of Adjustment and Social Problems

Bivariate correlations clearly showed that scores indicating a higher GFP were associated with fewer previous adjustment an social problems (see Table 3). Specifically, High GFP_{CPI} scores were associated with fewer school problems, fewer indications of child or adult adjustment problems, and lower levels of social marginality. In addition, inmates from higher socioeconomic background had higher GFP scores. For the GFP_{MMPI} , we found the same overall pattern in which lowers scores, indicating a higher GFP, were associated with more favorable scores on all history measures. After controlling for the corresponding social desirability measures, the correlations did not notably change and all remained significant (see Table 3).

Overall Delinquency/Adjustment Factor

Similarly to research on intelligence and personality, it has been proposed that a general

factor exists in delinquent and deviant behavior (see LeBlanc & Girard, 1997 for a review). To test for this possibility we conducted an additional factor analysis on the continuous and ordinal measures of delinquent and problematic behavior.¹ This analysis identified a first unrotated factor (PAF-method) that explained 54% of the variance in the delinquent and problematic behavior measures (Eigenvalue = 3.71). Also, all measures loaded in the expected direction on this general delinquency factor (age first arrest, -.66, total number of arrests, .39, adult adjustment problems, .69, childhood adjustment problems .86, interpersonal problems, .88, school problems, .67, and social marginality, .66). Table 3 shows that this general delinquency factor correlated in the expected directions with the GFPs from the CPI and the MMPI. Thus, further confirming the association between the GFP as broad personality trait on

¹ The categorical variables such as violence classifications, previous commitment, etc., were not included in the factor analysis. For example, the initial violence classification has some ordinal properties (nonviolent, potentially violent, angry violent) but some groups cannot really be placed on a continuum from low to high. Specifically, angry violent and instrumentally violent are not necessarily ordinal.

the one hand and general delinquent and problematic behavior on the other hand.

Delinquent Behavior, the GFP, and General Intelligence

In the present sample, the proxy-measure of intelligence (SAT scores) substantially overlapped with the CPI-based GFP and MMPI-based GFP with values of $r = .51$ and $r = -.33$, respectively. Following these outcomes, we first conducted a set of analyses examining the basic role of intelligence in delinquent behavior. **Tables 4** (ANOVAs) and **5** (correlations) display that for almost each of the delinquency variables in this study, the intelligence proxy measure showed moderate effect sizes. After controlling for the GFP (or using the GFP as a covariate in the ANOVAs), the effect sizes of the relations between intelligence and delinquency were reduced, but the majority of the relations remained significant [Violence classification, $F(3, 666) = 3.44, p = .02, \eta^2 = .015$; Institutional violence, $F(2, 913) = 8.16, p < .001, \eta^2 = .018$; Recidivism, $F(1, 832) = 14.872, p < .001, \eta^2 = .017$; see also **Table 5** for the partial correlations]. Intelligence effects that were no longer significant after controlling for the GFP were; Violence during the index of-

fense, $F(3.899) = 1.68, p = .17, \eta^2 = .006$, whether inmates had previous convictions, $F(1.832) = 1.96, p = .16, \eta^2 = .002$, and the correlations with the total number of arrests and the level of social marginality (see **Table 5**).

Another way of examining the overlap between the GFP and intelligence in delinquent behavior is by reversing the analyses and testing how the effects of the GFP change after controlling for the intelligence proxy. In the ANOVAs several of the relations between the GFP and delinquency did no longer reach significance after including intelligence as a covariant (see **Table 6**). Other effects remained intact, however (e.g., recidivism and previous conviction for the CPI, and institutional violence for the MMPI). In addition, the majority of correlations between the GFP and delinquency measures remained significant after controlling for intelligence (see **Table 3**).

Lastly, one possibility is that the GFP and intelligence interact in their relation to delinquency. A first test we conducted on this was a hierarchical regression analysis with the general delinquency factor as dependent variable (see above), and GFP, intelligence, and their interaction as independent variables. This regression showed that the GFP and intelligence (entered

Table 4
Means (SDs), 95% Confidence Intervals, and ANOVA Results on Cognitive Ability Measures (SAT Scores) and Delinquent Behavior

	<i>n</i>	<i>M (SD)</i>	95% CI [low, high]	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Violence classification				(3, 778)	8.58	<.001	.032
Nonviolent	287	79.13 (27.11)	[75.98, 82.28]				
Potentially violent	54	76.65 (24.70)	[69.91, 83.39]				
Angry violent	339	69.60 (23.76)	[67.07, 72.14]				
Instrumentally violent	102	70.25 (21.20)	[66.08, 74.14]				
Violence entry offence				(3, 1014)	2.31	.08	.007
Nonviolent	880	75.01 (25.88)	[73.20, 76.72]				
Potentially violent	54	68.59 (25.66)	[61.75, 75.43]				
Angry violent	43	68.93 (23.90)	[61.58, 76.20]				
Instrumentally violent	68	70.18 (24.03)	[64.36, 76.00]				
Institutional violence				(2, 1055)	12.89	<.001	.024
Nonviolent	394	76.45 (26.39)	[74.33, 78.50]				
Disruptive	379	74.05 (24.55)	[71.33, 76.71]				
Violent	135	64.14 (23.23)	[60.19, 68.09]				
Recidivism?				(1, 960)	31.00	<.001	.031
No	480	78.48 (26.33)	[76.12, 80.84]				
Yes	482	69.42 (24.11)	[67.26, 71.58]				
Previous conviction?				(1, 960)	8.43	<.001	.010
No	655	75.78 (26.49)	[73.66, 77.89]				
Yes	357	70.83 (23.81)	[68.35, 73.31]				

Table 5
Bivariate and Partial Correlations Between General Intelligence Proxy and Delinquent Behavior and Previous Psychological and Social Problems

	General intelligence (SAT scores)	General intelligence (SAT scores) after controlling for GFP
Age at first arrest	.29***	.17**
Total number of arrests	-.14**	-.04
Interpersonal adjustment in prison	.24***	.16*
Work adjustment in prison	.23***	.14**
School problems	-.37***	-.26***
Interpersonal relations problems	-.25***	.13**
Childhood maladjustment and deviance	-.22***	.18***
Adult maladjustment and deviance	-.22***	.11*
Social marginality	-.21***	.05
Socioeconomic status	.46***	.32***
General delinquency factor	-.28***	-.23***

Note. Primary correlations between intelligence and delinquency/crime are in bold face.
* $p < .05$. ** $p < .01$. *** $p < .001$.

in Step 1) together explained 17.3% of the variance in general delinquency ($p < .001$). Both Beta-weights were significant ($\beta_{\text{GFP}} = -.26$, $p < .001$, $\beta_{\text{Intelligence}} = -.23$, $p < .001$). The GFP-intelligence interaction term did not reach significance however, and only explained 0.10% of the variance ($\beta_{\text{interaction}} = -.03$, $p = .58$). To be complete, we also tested GFP-intelligence interactions on each of the specific delinquency or problematic behavior measure in this study, but no significant interactions were found. We do not report all these specific interaction tests in the present article but results can be obtained upon request to the first author.

Overall, the analyses revealed that the GFP and intelligence overlapped and shared variance in their relation to delinquency. Beyond intelligence, the GFP seems to have unique variance that remains significantly related to some delinquency measures. Conversely, beyond the GFP,

the unique variance of intelligence remained significantly related to most of the delinquency measures.

Discussion

The present study provides a direct empirical test of the relation between the GFP and delinquent behavior. This relation has been predicted by Life History Theory (Figueredo & Rushton, 2009; Wenner et al., 2013). An important asset of the present study was the use of various types of outcome measures such as self-reports, interviews, objective administrative data, and ratings from case workers and probation workers. As is inherent to social science research, each of these measures may have had its limitations (self-report bias, underrepresentation, halo-effects, etc.). Yet, particularly compelling was that the majority of these different outcome measures

Table 6
Results ANOVAs on CPI-Based and MMPI-Based GFPs and Delinquent Behavior, After Controlling for the Intelligence Proxy Measure (SAT Score)

	CPI-based GFP				MMPI-based GFP			
	<i>df</i>	<i>F</i>	<i>p</i>	η^2	<i>df</i>	<i>F</i>	<i>p</i>	η^2
Violence classification	(3,709)	1.03	.38	.004	(3,715)	.13	.94	.001
Violence entry offense	(3,980)	2.26	.08	.007	(3,966)	.81	.40	.003
Institutional violence	(2,964)	1.92	.15	.004	(2,980)	6.50	.001	.015
Recidivism?	(1,880)	6.58	.01	.007	(1,890)	2.36	.13	.004
Previous conviction?	(1,879)	4.51	.03	.005	(1,889)	3.00	.08	.002

converged into the same direction. More specifically, inmates who displayed scores indicating a higher GFP (that is, low on the GFP_{CPI} and high on the GFP_{MMPI}) showed more evidence of psychological and social problems and more delinquent behavior. In general, the effect sizes were small to moderate, yet it has to be noted that such effect sizes fall within the range of effects that are often reported in research on personality, and that typically vary between $r = .10$ and $.30$ (corresponding to 1% to 9% explained variance).

Even though all participants in the sample were convicted and institutionalized, it became apparent that the ones who appeared higher on the GFP continuum had used less violence during their index offense. In addition, high GFP inmates had less trouble adjusting to prison life and were considered less violent or disruptive during their first three months in the institute.

Previous criminological studies have consistently found that an early start in criminal behavior is a good predictor of a lifelong criminal career with frequent and serious offenses (Farrington, 1996). Regarding this, it is relevant to emphasize that inmates with lower GFP scores were younger when they were arrested for the first time and also showed more recidivism. This seems to indicate that the GFP is a measure of individual differences that may predict the likelihood of developing a persistent criminal career.

One of the reoccurring topics in the current GFP literature is its relation with general cognitive intelligence (Irwing et al., 2012; Loehlin, 2011; Schermer et al., 2012). In the present sample, Stanford Achievement Test (SAT) scores were available as an indicator of the inmates' intelligence. Although, the use of proxy measures also has some limitations, the SAT scores can be assumed to provide a fairly good indication of general intelligence. In the present sample, this was confirmed by the fact that in a subsample of $n = 400$ inmates, the correlation between the SAT scores and direct measures of general intelligence with the GATB was $r = .73$, which is as high as the correlations between various direct tests of general intelligence. The GFP measures in the present sample were substantially correlated with the intelligence indicator, thereby further confirming the GFP-intelligence link as is hypothesized in Life History Theory (Figueredo et al., 2006). In ad-

dition, the GFP and intelligence overlapped in their prediction of delinquent behavior, but both also had unique variance contributing to predicting delinquency.

All in all, the present pattern of findings may contribute to knowledge in the areas of individual differences, evolutionary approaches, and criminology in two ways. First, it confirms that the GFP is associated with delinquent behavior. This prediction has been made in previous papers (Figueredo et al., 2006; Rushton & Irwing, 2011), but to our knowledge has not been directly put to the empirical test before using a mix of other-ratings and objective data. The present findings also support the notion that the GFP reflects a consistent characteristic of a person that is associated with the development of psychological and social problems. Such a picture of the GFP is not in par with the idea that the construct reflects not much more than response bias (e.g., faking) resulting from the way personality is measured (i.e., with self-report surveys). Instead, the findings are more in line with the notion of the GFP as a broad personality trait facilitating social effectiveness and affecting many life areas (Figueredo et al., 2006; Rushton & Irwing, 2011). An ongoing endeavor is to discover the exact nature of this trait. Regarding this, it is interesting to note that, already in 1915, Webb described a general factor of personality which he dubbed the ω -factor. The symbol ω referred to will-power. According to Webb, this so-called will-power has a broad influence on many aspects of behavior and also on the manifestation of personality. This interpretation of the GFP as a manifestation of will-power shows an interesting resemblance to the presumed central role of self-control in criminal behavior as described in the more recent literature (Gottfredson & Hirschi, 1990; Pratt & Cullen, 2000). Further research into this direction would be useful.

A second way in which the present study can contribute to the literature is that the GFP-perspective may be relevant for integrating individual differences with evolutionary accounts of criminal behavior. Specifically, Life History Theory describes LH strategy as an underlying cause linking, among others, personality, delinquent behavior, and intelligence. Lineages that during human evolution have developed a slow LH strategy, characterized by relatively high parental effort and low mating effort would less

likely engage in antisocial behavior. Walsh and Beaver (2009) stated that “traits that facilitate parenting effort underlie other forms of prosocial activity” (p. 18). This idea is in line with the findings of Van der Linden et al. (2012) who found that, among 400 families, high-GFP scores of parents were accompanied with increased parental support. On the other hand, socially undesirable traits indicating the lower-end of the GFP continuum, such as aggressiveness, impulsiveness, and even psychopathological tendencies tend to favor short-term mating strategies. These traits may also play a crucial role in the development of delinquent behavior (Wiebe, 2009).

Limitations

In interpreting the results from the present study, a limitation that needs to be taken into account is that the sample exclusively consisted of males who were convicted and institutionalized. Thus, the sample was specific and range-restricted with regard to criminal behavior. On the other hand, despite this limitation we found clear relations between the GFP and delinquency and type of crime. Although one has to be cautious in generalizing the findings, we would expect that GFP-delinquency relations might even be stronger in representative samples of the population containing more variance in the predictor and outcomes variables. Future studies may wish to test this expectation directly.

Concluding Remarks

In criminology, there is a growing attention for the role of individual differences and evolutionary accounts of behavior (Walsh & Beaver, 2009). This approach has proven to provide a valuable addition to more traditional approaches for predicting the development of delinquent behavior. The notion that traits and evolutionary processes are involved in criminal behavior should not be wrongfully interpreted as deterministic. It is well known that traits and evolutionary dispositions interact with environmental influences in shaping an individual's behavior (Figueredo, Gladden, & Hohman, 2011).

In the same vein, the existence of a general factor of personality does not imply that an individual's personality can be entirely reduced

to a single continuum of social desirability or social effectiveness. Human behavior is complex and involves numerous facets. Therefore, in some cases looking at specific traits may be useful to predict outcomes that are in line with the trait (e.g., Neuroticism may be a particularly good predictor of stress levels). GFP theory merely states that in human personality there might be a general latent trait exerting a broad influence on how a person behaves and interacts with others. Likely candidates for the nature of this latent trait are social or emotional intelligence, and will-power (Van der Linden, Tsaou-sis et al., 2012; Webb, 1915). Moreover, Life History Theory may provide a useful overarching framework providing an explanation for the relation between personality and crime. In this way, among the potential antecedents of delinquent behavior, the GFP is one of the ‘unusual suspects’ that to date has received little attention in criminological research, yet may prove valuable for constructing a unifying view of individual differences in delinquent behavior.

References

- Anusic, I., Schimmack, U., Pinkus, R. T., & Lockwood, P. (2009). The nature and structure of correlations among Big Five ratings: The Halo-Alpha-Beta model. *Journal of Personality and Social Psychology*, 97, 1142–1156. doi:10.1037/a0017159
- Bäckström, M., Björklund, F., & Larsson, M. R. (2009). Five-factor inventories have a major general factor related to social desirability which can be reduced by framing items neutrally. *Journal of Research in Personality*, 43, 335–344. doi:10.1016/j.jrp.2008.12.013
- Bogaert, A. F., & Rushton, J. P. (1989). Sexuality, delinquency, and r/K reproductive strategies. Data from a Canadian university sample. *Personality and Individual Differences*, 10, 1071–1077. doi:10.1016/0191-8869(89)90259-6
- Butcher, J. N. (2001). Minnesota Multiphasic Personality Inventory (MMPI). *International Encyclopedia of the Social & Behavioral Sciences*, 9891–9894.
- Dunbar, R. I. M. (2010). Brain and behaviour in primate evolution. In P. H. Appeler & J. Silk (Eds.), *Mind the gap: Tracing the origins of human universals* (pp. 315–330). Berlin, Germany: Springer. doi:10.1007/978-3-642-02725-3_15
- Dunkel, C. S. (2013). The general factor of personality and general intelligence: Evidence for a sub-

- stantial association. *Intelligence*, 41, 423–427. doi:10.1016/j.intell.2013.06.010
- Dunkel, C. S., De Baca, T. C., Woodley, M. A., & Fernandes, H. B. F. (2014). The General Factor of Personality and general intelligence: Testing hypotheses from Differential-K, Life History Theory, and strategic differentiation–integration effort. *Personality and Individual Differences*, 61–62, 13–17. doi:10.1016/j.paid.2013.12.017
- Dunkel, C. S., & Decker, M. (2010). Convergent validity of measures of life-history strategy. *Personality and Individual Differences*, 48, 681–684. doi:10.1016/j.paid.2009.12.014
- Dunkel, C. S., Kim, J. K., & Papini, D. R. (2012). The general factor of psychosocial development and its relation to the general factor of personality and life history strategy. *Personality and Individual Differences*, 52, 202–206. doi:10.1016/j.paid.2011.10.016
- Dunkel, C. S., Mathes, E., & Beaver, K. M. (2013). Life history theory and the general theory of crime: Life expectancy effects on low self-control and criminal intent. *Journal of Social, Evolutionary, and Cultural Psychology*, 7, 12–23. doi:10.1037/h0099177
- Dunkel, C. S., & Van der Linden, D. (2014). Evidence for the general factor of personality as social-effectiveness. *Personality and Individual Differences*, 64, 147–151. doi:10.1016/j.paid.2014.02.030
- Eysenck, H. J. (1977). *Crime and personality*. London, UK: Routledge.
- Farrington, D. P. (1996). Later life outcomes of truants in the Cambridge study. In I. Berg & J. Nursten (Eds.), *Unwillingly to school* (pp. 96–118). London, UK: Gaskell.
- Figueredo, A. J., Gladden, P. R., & Hohman, Z. (2011). The evolutionary psychology of criminal behavior. In S. C. Roberts (Ed.), *Applied evolutionary psychology* (pp. 201–222). Oxford, UK: Oxford University Press. doi:10.1093/acprof:oso/9780199586073.003.0013
- Figueredo, A. J., & Rushton, J. P. (2009). Evidence for shared genetic dominance between the general factor of personality, mental and physical health, and life history traits. *Twin Research and Human Genetics*, 12, 555–563. doi:10.1375/twin.12.6.555
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., & Schneider, S. M. R. (2004). The heritability of life history strategy: The K-factor, covitality, and personality. *Biodemography and Social Biology*, 51, 121–143.
- Figueredo, A. J., Vasquez, G., Brumbach, B. H., Schneider, S. M. R., Sefcek, J. A., Tal, I. R., . . . Jacobs, W. J. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review*, 26, 243–275. doi:10.1016/j.dr.2006.02.002
- Goldberg, L. R. (1990). Language and individual differences: The search for universals in personality lexicon. *Journal of Personality and Social Psychology*, 59, 1216–1229. doi:10.1037/0022-3514.59.6.1216
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford, CA: Stanford University Press.
- Hackman, J., & Hruschka, D. (2013). Fast life histories, not pathogens, account for state variation in homicide, child maltreatment and family ties in the U.S. *Evolution and Human Behavior*, 34, 118–124. doi:10.1016/j.evolhumbehav.2012.11.002
- Hirschi, T., & Hindelang, M. J. (1977). Intelligence and delinquency: A revisionist review. *American Sociological Review*, 42, 571–587. doi:10.2307/2094556
- Irwing, P., Booth, T., Nyborg, H., & Rushton, J. P. (2012). Are g and the General Factor of Personality (GFP) correlated? *Intelligence*, 40, 296–305. doi:10.1016/j.intell.2012.03.001
- Janson, C. H., & van Schaik, C. P. (1993). Ecological risk aversion in juvenile primates: Slow and steady wins the race. In M. E. Pereira & L. A. Fairbanks (Eds.), *Juvenile primates: Lifehistory, development, and behavior* (pp. 57–74). Oxford, UK: Oxford University Press.
- Jones, S. E., Miller, J. D., & Lynam, D. R. (2011). Personality, antisocial behavior, and aggression: A meta-analytic review. *Journal of Criminal Justice*, 39, 329–337. doi:10.1016/j.jcrimjus.2011.03.004
- LeBlanc, M., & Girard, S. (1997). The generality of deviance: Replication over two decades with a Canadian sample of adjudicated boys. *Canadian Journal of Criminology*, 39, 171–183.
- Loehlin, J. C. (2011). Correlation between general factors for personality and cognitive skills in the National Merit twin sample. *Journal of Research in Personality*, 45, 504–507. doi:10.1016/j.jrp.2011.06.011
- Loehlin, J. C., & Martin, N. G. (2013). General and supplementary factors of personality in genetic and environmental correlation matrices. *Personality and Individual Differences*, 54, 761–766. doi:10.1016/j.paid.2012.12.014
- Mason, D. A., & Frick, P. J. (1994). The heritability of antisocial behavior: A meta-analysis of twin and adoption studies. *Journal of Psychopathology and Behavioral Assessment*, 16, 301–323. doi:10.1007/BF02239409
- Megargee, E. I., & Carbonell, J. L. (1996). Longitudinal study of violent criminal behavior in the United States, 1970–1984 [Computer file]. ICPSR version. Tallahassee, FL: Florida State University [producer], 1992.
- Meisenberg, G., & Woodley, M. A. (2013). Global behavioral variation: A test of differential-K. *Per-*

- sonality and Individual Differences, 55, 273–278. doi:10.1016/j.paid.2012.04.016
- Merrifield, P., & Hummel-Rossi, B. (1976). Redundancy in the Stanford Achievement Test. *Educational and Psychological Measurement*, 36, 997–1001. doi:10.1177/001316447603600426
- Musek, J. (2007). A general factor of personality: Evidence for the Big One in the five-factor model. *Journal of Research in Personality*, 41, 1213–1233. doi:10.1016/j.jrp.2007.02.003
- Ones, D. S., Viswesvaran, C., & Reiss, A. D. (1996). The role of social desirability in personality testing for personnel selection: The red herring. *Journal of Applied Psychology*, 81, 660–679. doi:10.1037/0021-9010.81.6.660
- Penke, L., Denissen, J. J. A., & Miller, G. F. (2007). The evolutionary genetics of personality. *European Journal of Personality*, 21, 549–587. doi:10.1002/per.629
- Pratt, T. C., & Cullen, F. T. (2000). The empirical status of Gottfredson and Hirschi's general theory of crime: A meta-analysis. *Criminology*, 38, 931–964. doi:10.1111/j.1745-9125.2000.tb00911.x
- Romero, E., Luengo, M. A., & Sobral, J. (2001). Personality and antisocial behavior: Study of temperamental dimensions. *Personality and Individual Differences*, 31, 329–348. doi:10.1016/S0191-8869(00)00139-2
- Rushton, J. P. (1985). Differential K theory: The sociobiology of individual and group differences. *Personality and Individual Differences*, 6, 441–452. doi:10.1016/0191-8869(85)90137-0
- Rushton, J. P. (2004). Placing intelligence into an evolutionary framework or how g fits into the r-K matrix of life history traits including longevity. *Intelligence*, 32, 321–328. doi:10.1016/j.intell.2004.06.003
- Rushton, J. P., Bons, T. A., Ando, J., Hur, Y., Irwing, P., Vernon, P. A., . . . Barbaranelli, C. (2009). A general factor of personality from multi-trait multi-method data and cross-national twins. *Twin Research and Human Genetics*, 12, 356–365. doi:10.1375/twin.12.4.356
- Rushton, J. P., Bons, T. A., & Hur, Y. (2008). The genetics and evolution of a general factor of personality. *Journal of Research in Personality*, 42, 1173–1185. doi:10.1016/j.jrp.2008.03.002
- Rushton, J. P., & Irwing, P. (2011). The General Factor of Personality: Normal and abnormal. In T. Chamorro-Premuzic, S. von Strumm, & A. Furnham (Eds.), *The Wiley-Blackwell handbook of individual differences*. London, UK: Blackwell Publishing. doi:10.1002/9781444343120.ch5
- Schermer, J. A., Carswell, J., & Jackson, S. (2012). Correlations between a general factor of personality and employment measures. *Personality and Individual Differences*, 53, 557–561. doi:10.1016/j.paid.2012.04.037
- Schermer, J. A., & Vernon, P. A. (2010). The correlation between general intelligence (g), a general factor of personality (GFP) and social desirability. *Personality and Individual Differences*, 48, 187–189. doi:10.1016/j.paid.2009.10.003
- Templer, D., & Rushton, J. P. (2011). IQ, crime, HIV/AIDS, and income in 50 US states. *Intelligence*, 39, 437–442. doi:10.1016/j.intell.2011.08.001
- Van der Linden, D., Figueredo, A. J., De Leeuw, R. H. N., Scholte, R. H. J., & Engels, R. C. M. E. (2012). The General Factor of Personality (GFP) and parental support: Testing a prediction from Life History Theory. *Evolution and Human Behavior*, 33, 537–546. doi:10.1016/j.evolhumbehav.2012.01.007
- Van der Linden, D., Te Nijenhuis, J., & Bakker, A. B. (2010). The General Factor of Personality: A meta-analysis and a criterion-related validity study. *Journal of Research in Personality*, 44, 315–327. doi:10.1016/j.jrp.2010.03.003
- Van der Linden, D., Tsaousis, I., & Petrides, K. V. (2012). Overlap between General Factors of Personality in the Big Five, Giant Three, and trait emotional intelligence. *Personality and Individual Differences*, 53, 175–179. doi:10.1016/j.paid.2012.03.001
- Verweij, K. J. H., Yang, J., Lahti, J., Veijola, J., Hintsanen, M., Pulkki-Raback, L., . . . Zietsch, B. P. (2012). Maintenance of genetic variation in human personality: Testing evolutionary models by estimating heritability due to common causal variants and investigating the effect of distant inbreeding. *Evolution*, 66, 3238–3251. doi:10.1111/j.1558-5646.2012.01679.x
- Veselka, L., Schermer, J. A., Petrides, K. V., Cherkas, L. F., Spector, T. D., & Vernon, P. A. (2009). A general factor of personality: Evidence from the HEXACO model and a measure of trait emotional intelligence. *Twin Research and Human Genetics*, 12, 420–424. doi:10.1375/twin.12.5.420
- Walsh, A., & Beaver, K. M. (2009). Introduction to biosocial criminology. In A. Walsh & K. M. Beaver (Eds.), *Biosocial criminology: New directions in theory and research*. New York, NY: Routledge.
- Webb, E. (1915). *Character and intelligence: An attempt at an exact study of character*. New York, NY: Cambridge University Press.
- Wenner, C. J., Bianchi, J., Figueredo, A. J., Rushton, J. P., & Jacobs, W. J. (2013). Life history theory and social deviance: The mediating role of executive function. *Intelligence*, 41, 102–113. doi:10.1016/j.intell.2012.11.004
- Wiebe, R. P. (2009). Psychopathy. In A. Walsh & K. M. Beaver (Eds.), *Biosocial criminology: New directions in theory and research*. New York, NY: Routledge.

Wilson, E. O. (1975). *Sociobiology*. Cambridge, MA: Harvard University Press.

Wilson, J. Q., & Herrnstein, R. J. (1985). *Crime and human nature*. New York, NY: Simon & Schuster.

Woodley, M. A. (2011). The cognitive differentiation-integration effort hypothesis: A synthesis between the fitness indicator and life history models

of human intelligence. *Review of General Psychology*, 15, 228–245. doi:10.1037/a0024348

Received February 27, 2014

Revision received July 22, 2014

Accepted August 21, 2014 ■

Members of Underrepresented Groups: Reviewers for Journal Manuscripts Wanted

If you are interested in reviewing manuscripts for APA journals, the APA Publications and Communications Board would like to invite your participation. Manuscript reviewers are vital to the publications process. As a reviewer, you would gain valuable experience in publishing. The P&C Board is particularly interested in encouraging members of underrepresented groups to participate more in this process.

If you are interested in reviewing manuscripts, please write APA Journals at Reviewers@apa.org. Please note the following important points:

- To be selected as a reviewer, you must have published articles in peer-reviewed journals. The experience of publishing provides a reviewer with the basis for preparing a thorough, objective review.
- To be selected, it is critical to be a regular reader of the five to six empirical journals that are most central to the area or journal for which you would like to review. Current knowledge of recently published research provides a reviewer with the knowledge base to evaluate a new submission within the context of existing research.
- To select the appropriate reviewers for each manuscript, the editor needs detailed information. Please include with your letter your vita. In the letter, please identify which APA journal(s) you are interested in, and describe your area of expertise. Be as specific as possible. For example, “social psychology” is not sufficient—you would need to specify “social cognition” or “attitude change” as well.
- Reviewing a manuscript takes time (1–4 hours per manuscript reviewed). If you are selected to review a manuscript, be prepared to invest the necessary time to evaluate the manuscript thoroughly.

APA now has an online video course that provides guidance in reviewing manuscripts. To learn more about the course and to access the video, visit <http://www.apa.org/pubs/authors/review-manuscript-ce-video.aspx>.