Are some people crime-prone? Replications of the personality-crime relationship across countries, genders, races, and methods

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ABSTRACT (ABSTRACT)

The relation between personality and crime was examined in two studies. Greater delinquent participation was associated with a personality configuration characterized by high negative emotionality and weak constraint.

FULL TEXT

We examined the relation between personality traits and crime in two studies. In New Zealand we studied 18-year-old males and females from an entire birth cohort. In Pittsburgh we studied an ethnically diverse group of 12-and 13-year-old boys. In both studies we gathered multiple and independent measures of personality and delinquent involvement. The personality correlates of delinquency were robust in different nations, in different age cohorts, across gender, and across race: greater delinquent participation was associated with a personality configuration characterized by high Negative Emotionality and weak Constraint. We suggest that when Negative Emotionality (the tendency to experience aversive affective states) is accompanied by weak Constraint (difficulty in impulse control), negative emotions may be translated more readily into antisocial acts. We review additional evidence about the developmental origins and consequences of this personality configuration and discuss its implications for theories about antisocial behavior.

Are some people crime-prone? Is there a criminal personality? Psychologists and criminologists have long been intrigued by the connection between personality and crime. In their efforts to explore this connection, however, members of the two disciplines have seldom drawn on their complementary strengths. In this article we report findings from two studies in which we sought to employ the strengths of both disciplines to determine whether personality differences are linked to crime.

We have studied personality and crime by using a two-pronged approach. First, we have studied individuals in different developmental contexts. Second, we have used multiple and independent measures of their personality and their criminal involvement. In New Zealand we have studied 18-year-olds from an entire birth cohort; the New Zealand study permits us to make detailed comparisons between males and females. In the United States we have studied an ethnically diverse group of 12-and 13-year-old boys; the American study permits us to make detailed comparisons between blacks and whites. By studying different age cohorts in different nations, boys and girls, blacks and whites, and by collecting in each of our studies multiple and independent measures of behavior, we can ascertain with relative confidence the extent to which personality differences are linked to crime.

PERSONALITY AND CRIME

Personality psychologists have proposed numerous well-articulated theories linking personality to crime and other antisocial outcomes. For example, Eysenck (1977) associates crime with extreme individual values on three personality factors: extroversion, neuroticism, and psychoticism. Zuckerman (1989) regards criminality as the sine qua non of individuals high on a factor he calls P-ImpUSS, which is characterized by impulsivity, aggressiveness, and lack of social responsibility. Cloninger (1987), using his three-factor biosocial model of personality, suggests that persons high in novelty seeking and low in harm avoidance and reward dependence are likely to be today's delinquents and tomorrow's violent, antisocial adults. In addition, a group of psychologists have proposed a link between antisocial behavior and theoretical physiological systems within the brain that are presumed to modulate impulse expression (Gray, 1977). Deficiencies in these neural systems have been suggested as the source for aggression in adults (Fowles, 1980; Gorenstein and Newman, 1980), as well as for conduct problems in children (Quay, 1986).

Many of these theories rely on trait-based personality models. In the past, the existence of traits was viewed as controversial (Mischel, 1968). In the last 20 years, however, researchers have amassed solid evidence documenting the cross-situational consistency (Epstein and O'Brien, 1985) and the longitudinal stability (Caspi and Bem, 1990) of traits, and psychology has witnessed a renaissance of the trait as an essential personality construct (Kenrick and Funder, 1988; Tellegen, 1991). Traits represent consistent characteristics of individuals that are relevant to a wide variety of behavioral domains, including criminality (see Eysenck, 1991).

Advances in personality theory and assessment, however, have had little influence on research conducted by criminologists (Gottfredson and Hirschi, 1990). Reviews of research on personality and crime appearing in mainstream criminology have identified numerous methodological problems with previous research (e.g., Schuessler and Cressey, 1950; Tennenbaum, 1977; Waldo and Dinitz, 1967), leading most cminologists to dismiss personality as a fruitless area of inquiry. Indeed, Criminology has published only four articles on the role of personality factors in crime since the journal was founded in 1964 (Stitt and Giacopassi, 1992).

METHODOLOGICAL PROBLEMS IN LINKING PERSONALITY TO CRIME

Although some researchers already are convinced that personality variables are essential to understanding crime (e.g., Eysenck and Gudjonsson, 1989), the criminological reviews cited above suggest that this belief is far from universal. In particular, critics of empirical efforts to link personality to crime have pointed to problems in measurement of personality, measurement of delinquency, and sampling. In our research we have attempted to redress each of these problems.

MEASUREMENT OF PERSONALITY

In previous studies of personality and crime, the most commonly used personality instruments have been the Eysenck Personality Inventory (EPQ), the Minnesota Multiphasic Personality Inventory (MMPI), and the California Psychological Inventory (CPI) (Arbuthot et al., 1987; Wilson and Herrnstein, 1985). Among these instruments, the EPQ Psychoticism (P) scale, the MMPI Psychopathic Deviate (Pd) scale, and the CPI Socialization (So) scale differentiate most clearly between criminal and noncriminal samples (Arbuthot et al., 1987; Eysenck and Gudjonsson, 1984). This is not surprising because each of these scales was constructed to detect criminal deviation. The Psychoticism (P) scale of the EPQ was created by choosing items that could differentiate successfully between criminals and average citizens (Farrington et al., 1982). The MMPI Pd scale was standardized on a group of incarcerated offenders (Dahlstrom et al., 1972). Similarly, although the construction of the CPI was guided by theoretical concerns (Gough, 1957), the Socialization scale (So), originally labeled

"Delinquency," was designed to differentiate reliably between delinquents and nondelinquents (Megargee, 1972). These scales are highly effective clinical tools for detecting criminals in an ostensibly normal population. Yet, a theory based on observed correlations between delinquency and the P, Pd, or So scales may be tautological, limited to demonstrating that adolescents who are most delinquent are most similar to the definition of delinquency that was built psychometrically into the scales.

In our studies of personality and crime we have used assessment instruments that were not designed to differentiate offenders from nonoffenders. Rather, we used assessment instruments that measure a comprehensive variety of personality traits; they were designed to blanket the human personality. These instruments allowed us to identify a constellation of personality traits, not merely a single trait, that might be linked to criminal involvement.

Previous studies of personality and delinquency also have been criticized for employing delinquency and personality questionnaires that included virtually identical items (Tennenbaum, 1977). For example, both the MMPI and the CPI include such items as "I have never been in trouble with the law" and "Sometimes when I was young I stole things." Similarities between legally defined offenses and the wording of items on personality inventories may inflate correlations between these two theoretically distinct constructs. In our studies we maintained sensitivity to this issue by evaluating each personality item in terms of its potential semantic overlap with any actual illegal acts.

MEASUREMENT OF DELINQUENCY

In previous studies of personality and crime, the most commonly used delinquency measure was the subject's conviction record or his presence in a correctional facility. A fundamental problem with official measures, however, is that "hidden criminals," offenders who commit crimes but are not caught, escape empirical attention and may slip into "control" samples (Schuessler and Cressey, 1950). Because only the tip of the deviance iceberg is reflected by official statistics (Hood and Sparks, 1470), many criminologists have turned to less strongly biased measures--specifically, self-reported delinquency questionnaires (Hindelang et al., 1979, 1981; Hirschi et al., 1980).

Yet self-report measures are not faultless. They have been criticized for including trivial items that query about acts which are unlikely to result in official intervention, such as skipping school or defying parental authority (Hindelang et al., 1979; Hirschi et al., 1980). Similarly, infrequent offenders may tend to report trivial events such as sibling fisticuffs in response to questions about "assault," or taking the family car without permission in response to questions about "auto theft" (Elliott and Huizinga, 1989). In contrast, frequent offenders may tend to underreport their delinquent behavior because the individual acts are so commonplace that they are not salient in the offenders' memories (Hirschi et al., 1980). Because both official records and self-report delinquency questionnaires have unique benefits and shortcomings, the use of the two measures in tandem is the most effective empirical strategy (Hirschi et al., 1980).

In our studies of personality and crime, we have collected multiple and independent measures of delinquent behavior: police records of contact, court records of conviction, self-reports, and reports from independent informants, parents, and teachers. These multiple measures have allowed us to identify robust personality correlates of crime that replicate across different measurement strategies.

SAMPLING

In previous studies of personality and crime, the most commonly used samples were drawn from incarcerated

populations. These samples are not representative of offenders as a whole; they represent only the subset of offenders who actually are caught and subsequently are sent to jail (Hood and Sparks, 1970; Klein, 1987). Moreover, adjudicated offenders may differ systematically from nonadjudicated offenders; offenders who are white, middle class, or female may be overlooked inadvertently (e.g., Taylor and Watt, 1977). In addition, the offenders' personal characteristics may influence official responses to their aberrant behavior; for example, some offenders may have enough poise to talk their way out of an arrest. Finally, incarceration itself may contribute to personality aberrations (Schuessler and Cressey, 1950; Wilson and Herrnstein, 1985). Thus, nonrepresentative sampling has clouded interpretation of observed differences between captive offenders and comparison groups.

In our studies of personality and crime, we have surveyed two different age cohorts whose members' level of involvement in illegal behaviors ranges from complete abstinence to a wide variety of delinquent violations. Therefore, our results are not limited to a selected minority of adolescent offenders who have been caught and convicted of their crimes.

The results of our studies are presented in two parts. Study 1 explores the personality-crime relationship in a birth cohort of 18-year-old males and females living in New Zealand. Study 2 attempts to replicate these findings among 12-and 13-year-olds living in a large American city.

STUDY 1: PERSONALITY AND CRIME AMONG MALES AND FEMALES: EVIDENCE FROM A NEW ZEALAND BIRTH COHORT

Study 1 explores the personality-crime relationship in a longitudinal-epidemiological sample (Krueger et al., in press). Members of this sample have been studied since birth. At age 18 they were administered an omnibus self-report personality inventory that assesses individual differences in several focal personality dimensions. In addition to this personality assessment, we gathered information about their delinquency using multiple and independent data sources: self-reports, informant reports, and official records.

METHOD

SUBJECTS

Subjects were adolescents involved in the Dunedin Multidisciplinary Health and Development Study. The cohort's history has been described by Silva (1990). Briefly, the study is a longitudinal investigation of the health, development, and behavior of a cohort of consecutive births between April 1, 1972 and March 31, 1973, in Dunedin, New Zealand. Perinatal data were obtained; when the children were traced for follow-up at age three, 1,139 children were deemed eligible for inclusion in the longitudinal study by residence in the province. Of these, 1,037 (91%) were assessed.

The sample has been reassessed with a battery of diverse psychological, medical, and sociological measures every two years since the children were three years old. Data were collected for 991 subjects at age five, 954 at age seven, 955 at age nine, 925 at age eleven, 850 at age thirteen, 976 at age fifteen, and 1,008 at age eighteen. With regard to social origins, the children's fathers are representative of the social class distribution in the general population of similar age in New Zealand. As to racial distribution, members of the sample are predominantly of European ancestry (fewer than 7% identify themselves as Maori or Polynesian).

MEASUREMENT OF PERSONALITY

As part of the age-18 assessment, 862 subjects completed a modified version (Form NZ) of the Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982). The MPQ is a self-report personality instrument designed to assess a broad range of individual differences in affective and behavioral style. The 177-item version of the MPQ (Form NZ) yields 10 different personality scales (Tellegen, 1982:7-8). Scale names, descriptions of high scorers for each scale, and internal consistency coefficients (alphas) are presented in Table 1. The alphas ranged from .63 to .80 and had an average value of .73. The scale intercorrelations for males ranged from -.30 to .50, with a mean absolute value of .16. The scale intercorrelations for females ranged from -.38 to .41, with a mean absolute value of .17. The low magnitudes of these intercorrelations are similar to those obtained with the original instrument and illustrate the relative independence of the 10 MPQ scales (see Tellegen et al., 1988).

The 10 scales constituting the MPQ can be viewed at the higher-order level as defining three superfactors: Constraint, Negative Emotionality, and Positive Emotionality (Tellegen, 1985; Tellegen and Waller, in press). Constraint is a combination of the Traditionalism, Harm Avoidance, and Control scales. Individuals high on this factor tend to endorse conventional social norms, to avoid thrills, and to act in a cautious and restrained manner. Negative Emotionality is a combination of the Aggression, Alienation, and Stress Reaction scales. Individuals high on this dimension have a low general threshold for the experience of negative emotions such as fear, anxiety, and anger, and tend to break down under stress (Tellegen et al., 1988). Positive Emotionality is a combination of the Achievement, Social Potency, Well-Being, and Social Closeness scales. Individuals high on Positive Emotionality have a lower threshold for the experience of positive emotions and for positive engagement with their social and work environments, and tend to view life as essentially a pleasurable experience (Tellegen et al., 1988).

MEASUREMENT OF DELINQUENCY

SELF-REPORTED DELINQUENCY

Self-reports of delinquency were obtained for 930 subjects during individual interviews with the standardized instrument developed by Elliott and Huizinga (1989) for the National Youth Survey (Elliott et al., 1983). Self-report measures of delinquency have been shown to have strong psychometric properties (for reviews see Hirschi et al., 1980; Moffitt, 1989). Across samples in different nations, for example, test-retest reliabilities for periods between two weeks and six months range from .75 to .98, internal consistency alphas range between .65 and .92, and criterion correlations between self-report and police or parent data hover near .40. The instrument used in the present study is currently the most highly respected self-report assessment of antisocial behavior.

For this research we used two self-report variables: a "variety" scale and a scale of index offenses. The variety scale indicates how many of 43 different illegal acts the respondent committed at least once during the past 12 months. Variety scores are useful for individual-differences research for several reasons. First, they show the extent of involvement in different types of crimes, a variable that has been found to be a highly reliable predictor of future antisocial outcomes (Robins, 1978). Second, they are less skewed than frequency scores. Third, they give equal weight to all delinquent acts, unlike frequency scores, which give more weight to minor crimes that are committed frequently (e.g., underage drinking) and less weight to serious, less frequent crimes (e.g., rape). The age-18 variety score ranged from 0 to 30 for males, with an alpha of .88. For females, the range was 0 to 29, and the alpha was .92.

To distinguish between serious crime and less serious crime, we also constructed a scale of index offenses. Because we used the measure of self-reported delinquency employed by Elliott and Huizinga (1983) in the National Youth Survey, we were able to construct for our sample their scale of index offenses: aggravated assault, gang fights, stole motor vehicle, stole something worth more than $50, broke into a building or vehicle, strong-armed

theft. One item from their scale, sexual assault, was omitted from our measure at age 18 because of concerns of the ethical review board. Nine percent of the sample members (62 males and 16 females) reported that they had committed multiple (two or more) index offenses during the past 12 months.

INFORMANTS' REPORTS OF DELINQUENCY

At the age-18 assessment, subjects were asked to nominate a friend or family member who knew them well, and to give us informed consent to send those informants a 41-item mail questionnaire. Of informants who returned the questionnaire, 824 provided responses to four items that inquired about our subjects' antisocial behavior during the last 12 months: "problems with aggression, such as fighting or controlling anger," "doing things against the law, such as stealing or vandalism," "problems related to the use of alcohol," and "problems related to the use of marijuana or other drugs." These items were coded as (0) doesn't apply, (1) applies somewhat, and (2) certainly applies. We summed the items to create a single index. For males, the index had an alpha of .63, and scores ranged from 0 to 8. For females, the index had an alpha of .50, and scores ranged from 0 to 6.

POLICE CONTACTS

"Police contacts" included all police actions that resulted in the filing of a standard incident form listing offenses which the officer knew had been committed by the juvenile. We obtained records of police contacts from age 10 through 16 for 991 subjects from Youth Aid constables in police departments throughout New Zealand. These records were unavailable for 12 subjects because they had died, and for 34 others because they had moved outside New Zealand. Of the males in the sample, 18.8% were known to the police as juvenile delinquents; the number of contacts between males and the police ranged from 0 to 18. Among the females, 9.8% were known to the police as juvenile delinquents; the number of contacts between females and the police ranged from 0 to 12. The sample was representative of New Zealand juveniles as a whole in regard to the number of police contacts (Moffitt, 1989).

COURT CONVICTIONS

We obtained computerized records of 932 subjects' court convictions at all courts in New Zealand and Australia by searching the central computer system of the New Zealand Police. The convictions did not include traffic offenses, with the exception of drunk driving and criminally negligent driving. (Routine motor vehicle violations were handled by a separate agency in New Zealand during the period when the present data were collected.) Records included convictions in Children's and Young Persons' Court up to the seventeenth birthday, and convictions in adult Criminal Court up to the eighteenth birthday. Informed consent for the search was obtained during the age-18 interviews; hence we could not acquire records for subjects who did not participate in the age-18 assessment, were deceased, did not give informed consent for the record search, or lived outside New Zealand or Australia. The 22 participants who did not consent to the search did not differ from the whole sample on self-reported delinquency at ages 13, 15, or 18. Of the males, 14.9% had one conviction or more (range 0-68); for females, the comparable figure was 5.5% (range 0-10).

To distinguish between one-time offenders and repeat offenders, we identified those sample members who had two or more criminal convictions. Six percent of the sample members (45 males and 13 females) were classified as repeat offenders.

To distinguish between court convictions for minor offenses (e.g., underage drinking) and more serious offenses, we identified those sample members who had been convicted in adult court for a violent offense. Sample members

who were classified as engaging in violent crime had a court conviction for one or more of the following offenses: inciting violence, aggravated cruelty to an animal, disorderly behavior likely to cause violence, using an attack dog on a person, obscene language to incite violence, possession of an offensive weapon, threatening a police officer, rape without weapon, manual assault, assault with intent to injure, assault on police officer, assault with a deadly weapon, and aggravated robbery. Three percent of the sample members (21 males and four females) had been convicted of a violent offense (convictions for a violent offense constituted 26% of all the convictions).

CONVERGENT VALIDITY OF DELINQUENCY MEASURES

To be certain that all three measures of delinquency (self-reports, informant reports, and official records) were converging on the same phenomenon, we computed correlations between the delinquency measures separately for males and for females. For males, the correlations were .36, .40, .42, .47, .48, and .78; for females, .05, .13, .21, .35, .36, and .71. Only the .05 correlation between police contacts and informant reports of delinquency among females was not statistically significant beyond the .05 level.

ATTRITION

We examined whether subjects who did (versus did not) complete the MPQ differed in self-reported delinquency.(1) Subjects who completed the MPQ did not differ significantly from nonrespondents in self-reported delinquency at age 18, $t(928) = 1.26$, ns. Subjects who did not complete the MPQ at age 18, however, had reported more delinquent activity at age 15 than those who completed the MPQ, $t(958) = 2.5$, $p < .05$. This finding suggests that some very delinquent 15-year-olds were not available to complete the MPQ at age 18. Hence the variance in self-reported delinquency at age 18 probably was slightly lower than it would have been if these subjects had been included. Because less variance in the delinquency variable was available to be predicted by personality, our effect sizes may underestimate the true effect size in the population; attrition thus may make our analyses more conservative.

RESULTS

To assess the relation between personality characteristics and delinquency, we computed correlations between the 10 MPQ scales and measures of delinquency drawn from independent data sources. These results are presented separately for males and for females in Table 2 (self-report data and informant data) and Table 3 (official police and court data).

PERSONALITY CORRELATES OF SELF-REPORTED DELINQUENCY

Table 2 shows the MPQ correlates of self-reported delinquency for males and females. Almost identical results were found in both groups. For both males and females, self-reports of delinquency were associated positively with the MPQ scales Aggression, Alienation, Stress Reaction, and Social Potency, and negatively with the MPQ scales Traditionalism, Harm Avoidance, and Control.

PERSONALITY CORRELATES OF INFORMANT-REPORTED DELINQUENCY

Because self-reports of personality and crime share source variance, we also asked independent informants about the delinquent acts committed by our subjects during the previous year. As shown in Table 2, we found convergence between the personality correlates of the self-reports and the informant reports of delinquency.

For boys, of the seven MPQ scales that correlated with self-reports of delinquency, four also correlated with informant reports about delinquency. Informant reports of delinquency were related positively to the MPQ scales Aggression and Alienation, and negatively to the scales Traditionalism and Control. For girls, five of the eight MPQ scales that correlated with self-reports of delinquency also correlated with informant reports about delinquency. Informant reports of delinquency were related positively to the MPQ scales Aggression, Alienation, and Stress Reaction, and negatively to the scales Traditionalism and Control.

PERSONALITY CORRELATES OF OFFICIAL REPORTS OF DELINQUENCY

Whereas self-reported and informant-reported data are closest to the subject's actual behavior, official data attest to the consequential nature of involvement in criminal behavior. Thus, the number of police contacts is an index of behavior serious enough to have warranted official intervention. A still more accurate detector of serious delinquency is the subject's conviction record. Table 3 shows the personality correlates of the officially detected delinquent offenders, as indicated by police contacts and conviction records.

For boys, we found convergence between the personality correlates of self-informant, and official reports of delinquency. All four MPQ scales that correlated with both self-reports and informant reports of delinquency also correlated with official reports of delinquency. As shown in Table 3, official reports of delinquency were related positively to the MPQ scales Aggression and Alienation, and negatively to the scales Traditionalism and Control. For girls, three of the five MPQ scales that correlated with both self-reports and informant reports of delinquency also correlated with official reports: official reports of delinquency were related positively to Aggression and negatively to Traditionalism and Control.

DOES SHARED ITEM CONTENT INFLUENCE CORRELATIONS BETWEEN PERSONALITY AND DELINQUENCY?

Earlier in this paper we identified predictor-criterion overlap as a pervasive problem in research linking personality to delinquency. To be certain that the correlations reported above did not suffer from this shortcoming, four psychologists independently judged all 177 MPQ items for content overlap with the domain of delinquent activity (i.e., an item that implies illegal behavior or that might appear on a self-report delinquency questionnaire). Of the 177 items, the raters identified six that described criminal or physically assaultive activity. All of these items happened to be part of the MPQ Aggression scale. None of the other MPQ scales contained items that overlapped with the domain of delinquent activity.

Table 4 presents the six items identified by the judges along with the 12 other items on the Aggression scale. These 12 items on the Aggression scale (judged to be uncontaminated) were combined to form a scale labeled "Nondelinquent" Aggression. Correlations between the Nondelinquent Aggression scale and the four measures of delinquency did not differ significantly from the correlations between the original Aggression scale and the four measures of delinquency (.58 vs. .53 for self-reported delinquency; .29 vs. .26 for informant-reported delinquency; .25 vs. .21 for police contacts; .20 vs. .17 for court convictions). Thus, predictor-criterion overlap does not appear to be a significant confound in the present study of personality and delinquency.

HIGHER-ORDER PERSONALITY FACTORS AND DELINQUENCY

To summarize the personality correlates of delinquent behavior across the three independent data sources, we examined correlations between the MPQ's three higher-order factors and each measure of delinquent activity. The correlation coefficients are presented in Table 5.

Among both males and females, Constraint and Negative Emotionality emerged as robust correlates of delinquent behavior across the three different data sources. Positive emotionality was not associated significantly with any measure of delinquent behavior. The correlations in Table 5 suggest that male and female delinquents exhibited convergent personality profiles characterized by impulsivity, danger seeking, a rejection of traditional values, aggressive attitudes, feelings of alienation, and an adversarial interpersonal attitude.

The overall MPQ personality profiles explained 25% (girls) to 34% (boys) of the variance in self-reported delinquency, 6% (boys) to 11% (girls) of the variance in informant-reported delinquency, and 3% (girls) to 4% (boys) of the variance in official delinquency records.

ARE INDIVIDUAL DIFFERENCES IN PERSONALITY CORRELATED WITH SERIOUS CRIMINAL ACTS?

Criminologists would be persuaded more fully by evidence linking personality traits to crime if personality traits could be shown to relate to serious criminal behavior. To address this issue, we examined the higher-order personality scores of three groups of persons: (1) persons who self-reported having committed multiple (two or more) index offenses in the past year, (2) persons who were identified through court conviction records as repeat offenders, and (3) persons who had been convicted for a violent offense. We restricted this examination to males because relatively few females were involved in serious criminal acts, as defined above.

Table 6 shows scores on the MPQ's three higher-order factors for the three above-mentioned groups. For this analysis we standardized the personality factors to the same scale, using the Z-score transformation. Thus each personality factor had a mean of 0 and a standard deviation of 1. T-tests between persons involved in serious criminal behavior and comparison groups revealed that persons involved in serious criminal behavior scored significantly lower on MPQ Constraint and significantly higher on Negative Emotionality. The effect sizes associated with these differences were moderate to large (Cohen, 1988); the group differences ranged from .5 S.D. to more than 1.0 S.D. The results in Table 6 also may yield more realistic measures of the strength of the personality-offending relationship than do the correlation coefficients reported in Table 5. Those correlations may be misleadingly low because they were computed from skewed variables.

In sum, the results from our analyses of the personality correlates of serious crime are very similar to the results from our analyses of the personality correlates of other antisocial activities. Apparently the same personality traits are implicated in antisocial acts of varying severity.

SUMMARY

The results have revealed robust personality correlates of delinquency. Among both males and females, three personality scales were correlated with all three independent sources of delinquency data (self-reports, informant reports, and official reports): delinquency was associated negatively with the MPQ scales Traditionalism and Control, and positively with Aggression. These results suggest that young men and women who engaged in delinquency preferred rebelliousness to conventionality, behaved impulsively rather than cautiously, and were likely to take advantage of others.

Two additional personality scales showed consistent patterns. Among males, all three data sources correlated with the MPQ scale Alienation, and two data sources correlated with the MPQ scale Stress Reaction; among females, two data sources correlated with both Alienation and Stress Reaction. These results suggest that young men and women who engaged in delinquency were also likely to feel betrayed and used by their friends and to become easily upset and irritable. At the higher-order factor level, greater delinquent participation was associated

with a unique trait configuration: greater negative emotionality and less constraint.

These findings were not compromised by problems inherent in measuring delinquency; the personality correlates were robust across different methods of measuring delinquency. Moreover, the interpretation of these data was not compromised by predictor-criterion overlap because we eliminated any content overlap between the personality items and the delinquency measures. These findings, however, were observed in a single sample. We now turn to a replication of these findings in a different context.

STUDY 2: PERSONALITY AND CRIME AMONG BLACKS AND WHITES: EVIDENCE FROM AN AMERICAN METROPOLIS

Study 1 reported on mostly white adolescents who live in a mid-sized city with little social decay in comparison with America's largest cities. It is possible that the racial or ecological composition of this sample may have distorted the relations between personality and crime. For example, it may be that relations between personality characteristics and crime may be attenuated among inner-city youths who experience many contextual pressures to engage in illegal behavior. Will negative emotionality and constraint predict delinquent behavior in individuals from different environments and during different developmental stages?

We address these generalizability issues in Study 2 by exploring the personality-crime relationship in a separate sample of American inner-city youths age 12 and 13. At that age, caregivers provided extensive personality descriptions of the youths. In addition, we gathered information about the youths' delinquency using multiple and independent data sources: self-reports, teachers' reports, and parents' reports.

METHOD

SUBJECTS

Subjects were participants in the Pittsburgh Youth Study (PYS), a longitudinal survey on the causes and correlates of early forms of delinquency. The sample was selected randomly from fourth-grade boys enrolled in public schools in Pittsburgh. An initial screening assessment of the sample took place in spring 1987 (N = 249) and spring 1988 (N = 619). The overall cooperation rate of the children and their caregivers was 85%. At the screening, each boy, his main caregiver, and a teacher were interviewed with the appropriate form of the Child Behavior Checklist (Achenbach and Edelbrock, 1983), supplemented by additional items drawn from a delinquency inventory (Elliott et al., 1985), to identify boys at risk for delinquency and criminal behavior. The information provided by the three informants was combined into an overall risk index. Boys ranking in the top 33% were retained in the study, together with a random half selected from the remainder of the sample. This procedure yielded a sample of 508 boys (half high-risk, half not at risk) to be followed in the study (for additional details about the sample, see Loeber et al., 1989).

The mean age for the fourth-grade boys was 10.2 at the time of the screening interview. After screening, the percentage of black boys was 53.5, compared with 53.9% for the population of fourth-grade public school classrooms in Pittsburgh (race is distributed equally across risk status). Slightly fewer than half of the sample members (44.2%) lived in households where the main caregiver had been separated, divorced, widowed, or never married; 40.6% of the boys had a father in the home. High school had not been completed by 21.2% of the mothers or acting mothers; at the other extreme, 5.5% of the mothers had earned a college degree. For fathers or acting fathers living with the child, the corresponding figures were 9.4% and 6.5%.

During the summer months of 1990, when the boys averaged between 12 and 13 years old, they were invited to come to the University of Pittsburgh, along with a primary caregiver, for our testing session. We were able to test a total of 430 subjects. Attrition for this part of the PYS research program was slightly higher than for other parts because subjects were required to travel to the study laboratory to be tested under standardized conditions. (For all previous waves, the PYS conducted interviews in the subjects' homes.) We performed analyses to determine whether there were differences between the sample members we studied and those we were unable to study. The 430 studied boys were compared with the 78 nonstudied boys separately on risk status (low, high), race (white, nonwhite), and social background (Hollingshead SES score). We found no significant differences between the two groups on risk status, chi sup 2 (1) <1, race chi sup 2 (1) <1, delinquent involvement, t <1, or social background, t <1. These analyses suggest that our findings are unlikely to be compromised by attrition bias.

MEASUREMENT OF PERSONALITY

Because the MPQ is not appropriate for younger adolescents, we used a different personality assessment instrument to describe the personalities of the boys in Pittsburgh. Specifically, the caregivers completed the "Common-Language" version of the California Child Q-sort (CCQ), a language-simplified personality assessment procedure intended for use with lay observers (Caspi et al., 1992). The CCQ originally was constructed by Jeanne and Jack Block for use by professional-level observers to describe children's personalities (Block, 1961; Block and Block, 1980). Caspi et al. (1992) introduced and validated language-simplifying modifications, making possible the use of the CCQ by lay observers who have little formal education and are from socioeconomically disadvantaged backgrounds. The CCQ contains 100 statements written on individual cards that describe a wide range of personality attributes (e.g., "He plans ahead; he thinks before he does something," "He is determined in what he does; he does not give up easily," "He tries to see what and how much he can get away with"). The caregiver's task was to sort these item cards into a forced nine-category distribution along a continuum ranging from "most like this boy" to "most unlike this boy."

The CCQ does not contain the same items as the MPQ. Nevertheless, the CCQ's item pool can be used to construct the three MPQ superfactors: Constraint, Negative Emotionality, and Positive Emotionality. The CCQ does not represent any one theory; rather, it reflects a general language for describing variations in children's personalities. Herein lies one of its advantages: the personality profile yielded by the Q-sort can be used to construct almost any personality variable. As proposed initially by Block (1957), this can be accomplished by first using the 100 item cards to prepare a criterion Q-sort that describes the prototype of a target personality trait. Then each adolescent's own Q-sort can be correlated with the criterion Q-sort. The resulting correlations are indices of similarity between the boy and the prototype, with possible values ranging from -1 (complete dissimilarity) to +1 (complete similarity). Conceptually these correlations reflect the degree to which the most salient attributes of each boy's personality resemble the prototype of a particular personality trait.

We used this "criterion-scoring" approach to assess individual differences in Constraint, Negative Emotionality, and Positive Emotionality. Specifically we asked three psychologists who have conducted extensive research with the MPQ (Auke Tellegen, Neils Waller, and Denise Newman) to use the California Child Q-sort cards to describe three prototype adolescents, each one corresponding to each of the three MPQ personality dimensions: Constraint, Negative Emotionality, and Positive Emotionality. The agreement between the experts was good; the interrater reliabilities were .68 for Constraint, .78 for Negative Emotionality, and .77 for Positive Emotionality. Then we combined the psychologists' independent depictions into a composite or criterion profile for each personality dimension. In turn, we "scored" each Pittsburgh boy's Q-sort profile for each of the three personality dimensions by correlating it with the psychologists' criterion profiles.

MEASUREMENT OF DELINQUENCY

SELF-REPORTED DELINQUENCY

The Pittsburgh boys gave self-reports of their delinquency at ages 12 to 13 during the Self-Report Delinquency interview (SRD), which is based on the National Youth Survey (Elliott et al., 1985). The data gathered with this instrument in the Pittsburgh study are highly reliable, as reported by Loeber et al. (1991).

As in previous reports about this sample, the PYS principal investigators classified the delinquent behaviors according to severity ratings developed by Wolfgang et al. (1985). These ratings place a boy in one of six delinquency levels on the basis of the most serious offense he has committed in the last six months. Boys at the 0 level (N=271) had engaged in no delinquent activity. Boys in the Level 1 group (N=8) had engaged in minor delinquency in their homes (e.g., vandalism or theft in the home). Boys in the Level 2 group (N=52) had engaged in other minor delinquency such as shoplifting, theft at school, or fire setting with minor damage. Boys in the Level 3 group (N=55) had engaged in moderately serious delinquency (e.g., vandalism resulting in more than $100 worth of damage, theft from a car, gang fighting, or carrying a weapon). Boys in the Level 4 group (N=18) had engaged in serious delinquent acts such as stealing cars, breaking and entering, or selling drugs. The boys at Level 5 (N=5) had engaged in more than one Level 4 delinquent act.

TEACHERS' AND PARENTS, REPORTS OF DELINQUENCY

The Pittsburgh boys' teachers completed the Teacher Report Form (TRF); the boys' caregivers, usually mothers, completed the Parent Report Form (PRF). The teachers and caregivers completed these reports when the boys were 12 to 13 years old.

The TRF and the PRF are complementary versions of the Child Behavior Checklist, a questionnaire designed to index externalizing and internalizing behavior problems of childhood and adolescence (Achenbach and Edelbrock, 1983). This instrument is one of the most highly respected inventories for assessing behavior problems (Achenbach et al., 1991; Martin, 1988).

Both the TRF and the PRF include assessments of delinquency (Achenbach, 1991). The Delinquency scale includes items such as "truant, skips school," "uses alcohol or drugs for non-medicinal purposes," "lies or cheats," "steals outside the home," "vandalizes," and "hangs around with others who get into trouble." These items are scored as 0 (not true), 1 (sometimes true), or 2 (very true). The alpha coefficient of reliability for the TRF Delinquency scale in this sample is .85; for the PRF Delinquency scale, .80.

CONVERGENT VALIDITY OF DELINQUENCY MEASURES

To be certain that all three measures of delinquency (self-reports, teachers' reports, and parents' reports) were converging on the same phenomenon, we computed correlations between the delinquency measures separately for black and for white adolescents. For black youths the correlations were .23, .23, and .32; for white youths, .29, .33, and .36. All the correlations were statistically significant beyond the .05 level.

RESULTS

To assess the relation between personality characteristics and delinquency, we computed correlations between the CCQ measures of Constraint, Negative Emotionality, and Positive Emotionality with measures of delinquency

drawn from the three independent data sources: self-reports, teachers' reports, and parents' reports. These results are presented in Table 7, separately for black and for white adolescents.

Because the measure of personality and the parents' reports of delinquency shared source variance, we focus only on those correlations that replicate across different measurement sources. Across all three data sources, Constraint and Negative Emotionality emerged as robust correlates of delinquency among both black and white adolescents. The positive correlations with Negative Emotionality suggested that delinquent adolescents were prone to respond to frustrating events with strong negative emotions, to feel stressed or harassed, and to approach interpersonal relationships with an adversarial attitude. The negative correlations with Constraint suggested that delinquent adolescents were likely to be impulsive, danger-seeking, and rejecting of conventional values. Positive emotionality was not associated robustly with delinquent behavior.

The overall personality profiles explained 3% (blacks) to 6% (whites) of the variance in self-reported delinquency, 9% (blacks) to 21% (whites) of the variance in teacher-reported delinquency, and 22% (whites) to 26% (blacks) of the variance in parent-reported delinquency.

DISCUSSION

Our studies have revealed that individual differences in personality are correlated consistently with delinquency. Although we performed many analyses, the significant correlations were not scattered randomly across variables; rather, the same pattern of personality correlations was repeated consistently. We obtained these correlations in different countries, in different age cohorts, across gender, and across race. We also obtained these correlations when we measured delinquent involvement with self-reports, teachers' reports, parents' reports, informants' reports, and official records, and when we measured serious crime and less serious delinquency. Finally, we obtained these correlations when we measured personality both with self-reports and with parents' reports. The personality correlates of delinquency were robust: greater delinquent participation was associated with greater negative emotionality and less constraint.

Gottfredson and Hirschi (1990) have suggested that individual differences in "self-control" predispose some people to criminal behavior; this single stable individual difference is said to define a propensity or proneness to crime. Our findings support this theory somewhat, but they also suggest that it is simplistic psychologically. Crime-proneness is defined not by a single tendency (such as self-control or impulsivity) but by multiple psychological components. Across different samples and different methods, our studies of personality and crime suggest that crime-proneness is defined both by high negative emotionality and by low constraint.

HOW MIGHT NEGATIVE EMOTIONALITY AND CONSTRAINT LEAD TO CRIME?

Negative emotionality is a tendency to experience aversive affective states such as anger, anxiety, and irritability (Watson and Clark, 1984). It is likely that individuals with chronically high levels of such negative emotions perceive interpersonal events differently than other people. They may be predisposed to construe events in a biased way, perceiving threat in the acts of others and menace in the vicissitudes of everyday life.

This situation may be aggravated when negative emotionality is accompanied by weak constraint--that is, great difficulty in modulating impulses. In low-constraint individuals, negative emotions may be translated more readily into action. Such volatile individuals should be, in the vernacular of the Wild West, "quick on the draw." Theoretically, antisocial behavior should be likely among individuals who are high in negative emotionality and low in constraint.

WHAT ARE THE ORIGINS OF NEGATIVE EMOTIONALITY AND CONSTRAINT?

Our findings may be placed into a developmental context by considering theories about the environmental and biological origins of negative emotionality and constraint.

The family environment has a pervasive influence on children's lives and personality development, particularly on the development of antisocial behavior (e.g., Patterson, 1982). Harsh, inconsistent disciplinary practices and a chaotic home environment have been shown to predict later aggression (Loeber and Stouthamer-Loeber, 1986). Living under the constant threat of emotional or physical harm makes negative affect more than simply a perceptual bias for these youths; negative affect is rooted in the realities of their everyday lives. Constraint also may be affected by family dynamics. For example, parental conflict has been found to predict children's scores on constraint at age 18 (Vaughn et al., 1988). Thus, a personality configuration involving high levels of negative affect and low levels of constraint may develop when children grow and learn in a discordant family environment where parent-child interactions are harsh or inconsistent.

Negative affectivity and constraint also are considered to have specific neurobiological underpinnings. Recent research has pointed to a possible connection between the rate at which the brain expends its neurotransmitter substances and dimensions of personality (Cloninger, 1987). For example, abnormally low levels of a metabolite by-product from the neurotransmitter called serotonin have been found in the cerebrospinal fluid of prison inmates whose offense history is habitually violent and impulsive (Linnoila et al., 1983; Virkunnen et al., 1987). This finding has led theorists to outline the neural mechanisms by which low serotonin levels in the brain could simultaneously produce impulsivity and greater negative affectivity (Depue and Spoont, 1986; Spoont, 1992).

Theories linking personality traits to the primary neurotransmitters also may have important implications for research on the link between crime and genetics. Some adoption and twin studies have demonstrated a significant heritability for criminal behavior (see DiLalla and Gottesman, 1989; Mednick et al., 1986; Plomin et al., 1990), but these findings remain controversial in criminology (Walters and White, 1989). If future behavior genetic studies should document significant heritability for criminal behavior, how should we interpret this finding? Clearly, behavior itself cannot be inherited. Low serotonin levels, however, may be a heritable diathesis for a personality style involving high levels of negative affect and low levels of constraint, which generates in turn a vulnerability to criminal behavior. Indeed, negative affect and constraint themselves appear to be highly heritable; a study of twins reared together versus twins reared apart (Tellegen et al., 1988) found that more than 50% of the observed variance in both Negative Emotionality and Constraint (assessed by the MPQ) could be attributed to genetic factors.

PERSONALITY AND CRIME: THE CAUSAL QUESTION

The research reported in this article is cross-sectional; it cannot untangle the causal direction of the personality-crime relationship. For this purpose, we still must answer at least two questions.

1. Can negative emotionality and constraint measured prospectively in childhood predict which youths will take up delinquency when they enter adolescence?

Longitudinal studies must address this question, but the answer is likely to be yes. In the New Zealand study we tested the continuity hypothesis that temperamental variations in early childhood predict personality differences in later life (Caspi et al., in press; Caspi and Silva, in press). In particular, we found that children who were

"undercontrolled" at age 3 had elevated scores at age 18 on MPQ Negative Emotionality and very low scores on MPQ Constraint (Caspi and Silva, in press). At age 3, undercontrolled children were described by the examiners as irritable, impulsive, and impersistent; they had difficulty sitting still, were rough and uncontrolled in their behavior, and were labile in their emotional responses. At age 18, the same children described themselves as reckless and careless; they enjoyed dangerous and exciting activities, and preferred rebelliousness to conformity. They also enjoyed causing discomfort to others; yet they felt mistreated, deceived, and betrayed by others. This is the very personality configuration that we have linked to delinquency in the present study.

2. Can negative emotionality and constraint measured during adolescence predict which adolescents will sustain adult crime careers and which will abandon delinquency for a conventional lifestyle?

Longitudinal studies must address this question as well; here, too, the answer is likely to be yes. A recent study of individual differences in personality--as assessed by the MPQ--confirms the great extent to which individual differences are preserved throughout young adulthood. Across a 10-year period, from age 20 to age 30, negative emotionality and constraint yielded cross-age correlations of .60 and .58 respectively (McGue et al., 1993). These correlations imply that individual differences are likely to be preserved throughout tine and in diverse circumstances. In the absence of radical environmental change, individuals are unlikely to change their relative standing in the population: persons who respond with strong negative emotions to everyday events as children are likely to continue to do so throughout adulthood; persons who are impulsive as children are likely to remain so throughout adulthood. Insofar as these individual differences predispose persons toward antisocial behavior earlier in life, they may be linked to antisocial behavior later in life.

Both of these developmental questions can be tested in future studies. Until then, we hope this report sparks further efforts among criminologists to measure individual differences in personality, and to incorporate these consequential personality differences into theories of crime (see for example, Eysenck and Gudjonsson, 1989; Gottfredson and Hirschi, 1990; Moffitt, 1993; Rowe and Osgood, 1984).

FOOTNOTE

1. A short field interview was taken to members of the sample who could not come to the Unit for the full day's assessment. The field interview included self-reports about delinquency but not the personality assessment.

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