Personality Dimensions and Criminal Arrest

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Previous studies have implicated antisocial personality disorder in criminal behavior, but little is known about the association between "normal" personality dimensions and arrest. We investigated the relationships between these personality dimensions and prior arrest in a sample of adults participating in a longitudinal epidemiological study. Between 1993 and 1999, psychiatrists re-examined subjects who were originally interviewed in Baltimore in 1981 as part of the Epidemiologic Catchment Area study; the psychiatrists diagnosed axis I and axis II disorders according to DSM-IV criteria. A total of 611 subjects also completed the Revised NEO Personality Inventory (NEO-PI-R), which assesses five broad factors and 30 facets of normal personality. History of criminal arrest in Maryland in the period 1981 to 1993 was determined from the state criminal justice database. Student's *t* test and logistic regression were used to evaluate relationships between NEO personality scores and prior arrest. Controlling for demographic characteristics, alcohol or drug use disorders, and DSM-IV personality disorder scores, the odds of prior arrest increased with scores on angry hostility, impulsiveness, and excitement-seeking dimensions. Prior arrest was inversely related to scores on trust, straightforwardness, compliance, modesty, dutifulness, and deliberation dimensions. The results suggest that specific dimensions of normal personality are related to criminal arrest in the community.

CRIMINAL ACTIVITY is a leading cause of morbidity and mortality in the United States and adversely impacts the quality of life of communities in this country.[1,2] The etiology of these behaviors appears complex, involving numerous individual, interpersonal, neighborhood, and community factors.[3,4] Results from several recent studies in patients,[5-9] arrestees,[10-13] and members of birth cohorts[14-17] suggest that individuals with psychiatric disorders—especially schizophrenia, alcohol and drug use disorders, and antisocial personality disorder—are at increased risk of criminal arrest.

Less is known about relationships between personality dimensions and arrest. McMillen et al.[18] found that individuals arrested multiple times for driving under the influence of alcohol scored significantly higher on scales of hostility, sensation seeking, and psychopathic deviance than did first-time offenders. Ulrich et al.[19] reported that criminal offenders scored significantly different than noncriminal controls on all ICD-10 personality disorder dimensions. Johnson et al.[20] found that, in a community-based sample of adolescents, paranoid, narcissistic, and passive-aggressive personality traits were associated with the self-reported commission of violent acts over the subsequent 10 years.

The focus of these studies has been on clinical criteria for personality disorders. The overlap between "abnormal" and "normal" conceptualizations of personality is an area of active investigation, and it has been proposed that normal personality dimensions may provide additional and sometimes richer clinical insight into an individual's strengths and potential problems.[21] In the current study, we evaluated the relationship between personality dimensions and documented prior arrest in a sample of adults participating in a longitudinal epidemiological study. The aim was to determine if "normal" personality dimensions are related to criminal arrest and if these relationships are independent of other important demographic and clinical features, including DSM-IV personality disorder dimensions.

METHOD

Sample

Subjects participating in the Hopkins Epidemiology of Personality Disorder Study were sampled from the Baltimore Epidemiological Catchment Area follow-up survey, as described previously.[22] In brief, in 1981, a total of 3,481 adult household residents of east Baltimore were sampled probabilistically and

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interviewed by lay interviewers using the Diagnostic Interview Schedule (DIS)[23]; 810 of these individuals also were examined by psychiatrists at that time. Between 1993 and 1996, a total of 1,920 (73%) of the surviving subjects were reinterviewed. From these 1,920 subjects, we invited for psychiatric examination subjects with a range of axis I psychopathology, including all those who were identified by the DIS as having a lifetime diagnosis of mania, depression, panic disorder, obsessive-compulsive disorder, alcohol use disorders, or drug use disorders at follow-up; had incident (i.e., between 1981 and follow-up) DIS-ascertained social phobia, agoraphobia, or cognitive impairment; or were examined by psychiatrists in 1981. In addition, we randomly selected approximately 25% of the remaining subjects for examination so as to have a sufficient number of individuals not selected for psychopathology. After providing informed consent, 816 subjects received the psychiatric examination between 1993 and 1999.

The current study is restricted to the 611 subjects who completed the normal personality inventory. The age of the subjects ranged from 30 to 87 years. Of these, 230 (38%) were men and 381(62%) were women; 378 (62%) were Caucasian and 230 belonged to other racial/ethnic groups. Subjects completing the inventory were slightly younger, on average, than the 205 who did not (mean ages, 47.5 and 50.5 years, respectively) ($t_{814} = 2.7$, $P < .01$), but the gender distributions of the two groups were similar (62% and 69% female, respectively).

Diagnostic Procedures

The subjects were examined by psychiatrists using the World Health Organization Schedules for Clinical Assessment in Neuropsychiatry (SCAN) to evaluate axis I disorders.[24] The psychiatrists assessed axis II personality disorder criteria using the personality disorder section of Standardized Psychiatric Examination (SPE)[25] supplemented by DSM-IV axis II criteria[26] that were not part of the original version; the reliability of the original instrument has been reported previously.[27] All DSM-IV personality disorder criteria were included, and biographical information, emphasizing interpersonal relationships, was collected on each subject. The psychiatrist rated each personality criterion on a 3-point scale ranging from 0 (absent) to 2 (trait definitely present and has caused the subject distress and/or disruption of social and occupational functioning); a score of 1 meant that the feature was present but did not cause the subject substantial distress or dysfunction. A dimensional score was calculated for each of the 10 DSM-IV personality disorders by summing the scores for each constituent feature of the specific disorder.[27]

Normal personality was assessed with the self-completed paper-and-pencil form of the Revised NEO Personality Inventory (NEO PI-R).[28] This instrument assesses the five domains of normal personality as construed by the Five-Factor Model: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Each domain is represented by six specific facet scales. Neuroticism facets are anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability. Extraversion facets are warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions. Openness facets are fantasy, aesthetics, feelings, actions, ideas, and values. Agreeableness facets are trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness. Conscientiousness facets are competence, order, dutifulness, achievement-striving, self-discipline, and deliberation. The *t* scores for the five domains and 30 facets were calculated according to the method of Costa and McCrae, which uses different reference means and standard deviations for men and women. These distributions have a mean of 50 and standard deviation of 10. T-scores ranging from 45 to 55 are considered "average." Scores less than 45 are considered "low," and those greater than 55 are considered "high."[28]

Prior Arrest

Arrest in Maryland between 1981 and 1994 was assessed using the State of Maryland Criminal Justice System database, a computerized file of all criminal records of individuals arrested, charged, and sentenced in the state of Maryland. The information includes the date of arrest, reporting court, citation number and description of the crime, verdict, and times of confinement, suspension, and probation. For this report, we categorized type of arrest charge into two groups: "violent" (assault, battery, murder, rape, or weapons violation) and "nonviolent" (theft, burglary, possession of illicit substances, and other crimes against property but not against persons). We treated arrest over the follow-up period (1981 to 1994) as a dichotomy (ever/never). A subject may have been arrested multiple times, for both violent and nonviolent crimes; if any of the arrests were for violent crimes, then this person was considered to have had a violent arrest. Most subjects with a violent arrest were also charged for nonviolent behaviors. If a subject was arrested only for nonviolent behaviors during the follow-up period, then he/she was considered to have a nonviolent-only arrest.

Statistical Analysis

The proportions of subjects with prior arrest were compared across demographic and axis I categories with the chi-square test. NEO personality scores in subjects with and without a prior arrest were compared using Student's *t* test; given the 35 separate NEO dimensions, we considered *P* values less than .002 as statistically significant. Logistic regression analysis was used to assess the relationships between DSM-IV personality disorder dimensions and prior arrest.[29] Logistic regression also was used to evaluate the relationships between NEO personality scores and prior arrest, controlling for demographic characteristics, alcohol or drug use disorders, and DSM-IV personality disorder dimensions that were associated with prior arrest.

RESULTS

Correlates of Prior Arrest

Of the 611 subjects, 79 (12.9%) had a history of arrest since 1981: 46 (7.5%) for a nonviolent-only crime, and 33 (5.4%) for a violent crime. The number of separate arrests ranged from 1 to 28 (mean, 2.9). As shown in Table 1, the proportion of subjects with a prior arrest was inversely related to current age, from 21% in 30- to 39-year-olds to 2% in those age 70 years and older. A greater proportion of men than women (19% *v* 9%), and a greater proportion of "others" than Caucasians (13% *v*

Table 1. Proportion of Subjects With Prior Arrest (1981 to 1993), by Demographic Features and Lifetime Ever Psychiatric Disorders in 1993 to 1999

	Prior Arrest, N (%)	Test Statistic	*P* Value
Age at interview (yr)			
30-39 (n = 194)	41 (21.1)		
40-49 (n = 217)	26 (12.0)		
50-59 (n = 86)	9 (10.5)		
60-69 (n = 55)	2 (3.6)		
70+ (n = 59)	1 (1.7)	χ^2 (trend) = 21.0	<.001
Sex			
Female (n = 381)	35 (9.2)		
Male (n = 230)	44 (19.1)	χ^2_1 = 12.6	<.001
Race			
White (n = 388)	19 (5.2)		
Other (n = 210)	27 (12.9)	χ^2_1 = 10.8	<.001
Schizophrenia			
No (n = 602)	78 (13.0)		
Yes (n = 9)	1 (11.1)	χ^2_1 = 0.03	.87
Major depression			
No (n = 468)	56 (12.0)		
Yes (n = 138)	22 (15.9)	χ^2_1 = 1.5	.22
Mania or hypomania			
No (n = 582)	74 (12.7)		
Yes (n = 20)	4 (20.0)	χ^2_1 = 0.91	.34
Drug use disorders			
No (n = 404)	17 (4.2)		
Alcohol only (n = 99)	14 (14.1)		
Other drugs (n = 102)	48 (47.1)	χ^2_2 = 131.8	<.001

5%), had been arrested. Subjects with a lifetime-ever diagnosis of schizophrenia or mania/hypomania were not more likely to have been arrested; however, prior arrest was significantly greater in individuals who had ever had alcohol use disorders, and nearly 50% of subjects who had ever had other psychoactive drug use disorders had been arrested.

Personality Disorder Scores and Prior Arrest

Prior arrest was associated with scores on several personality disorder dimensions (Table 2). The odds of prior arrest increased with the score on the adult antisocial dimension (odds ratio [OR] = 1.68), i.e., a 68% increase in odds of arrest per unit increase in the antisocial score. In addition, the odds of arrest increased with scores on paranoid, borderline, and narcissistic dimensions. In contrast, prior arrest was inversely related to obsessive-compulsive personality score.

These odds did not change appreciably after controlling for age, sex, or race (data not shown). Controlling for alcohol/drug use disorders did not substantially change the odds ratios for antisocial score (OR = 1.35; 95% confidence interval, 1.2 to 1.5, $P < .001$) or obsessive compulsive score (OR = 0.84 [0.7 to 0.99], $P = .04$), but it did substantially reduce the magnitudes of the association for paranoid (OR = 1.08 [0.9 to 1.2], $P = 0.30$), borderline (OR = 1.09 [0.96 to 1.2], $P = .18$), and narcissistic (OR = 1.18 [0.9 to 1.5], $P = 0.19$) scores.

NEO Personality Dimensions and Prior Arrest

As shown in Table 3, compared to subjects without prior arrest, arrested subjects had significantly higher mean scores on neuroticism and two neuroticism facets, angry hostility and impulsiveness Arrested subjects also scored higher on excitement-seeking. In addition, arrested subjects scored lower on agreeableness and several of its facets: trust, straightforwardness, compliance, and modesty. Arrested subjects also scored low on dutifulness and deliberation. In the nonarrested subjects, the mean NEO scores all fell within the range (45 to 55) considered "average." In contrast, in the arrested subjects, mean scores on several of the NEO facets were either higher (angry hostility) or lower (warmth, trust, compliance, and dutifulness) than the average range.

The odds of prior arrest increased from 4% to 7% per unit increase on neuroticism, angry hostility, impulsiveness, and excitement-seeking dimensions, and decreased 4% to 5% per unit increase on agreeableness, trust, straightforwardness, compliance, modesty, dutifulness, and deliberation di-

Table 2. Relationship between DSM-IV Personality Disorders Dimensions in 1993 to 1999 and Prior Arrest (1981 to 1993)

	Odds Ratio (95% CI)	*P* Value
Paranoid	1.24 (1.1-1.4)	.001
Schizoid	1.07 (0.9-1.3)	.42
Schizotypal	1.09 (0.98-1.2)	.11
Antisocial	1.68 (1.5-1.9)	<.001
Borderline	1.39 (1.2-1.6)	<.001
Histrionic	1.09 (0.99-1.2)	.08
Narcissistic	1.57 (1.2-2.0)	<.001
Avoidant	1.04 (0.8-1.3)	.73
Dependent	0.87 (0.6-1.3)	.45
Obsessive-compulsive	0.84 (0.7-0.98)	.03

Abbreviation: CI, confidence interval.

Table 3. NEO Personality Scores in 1993 to 1999, by Prior Arrest (1981 to 1993)

	Prior Arrest		Test Statistic	
	No (n = 532)	Yes (n = 79)	(t_{609})	*P* Value
Neuroticism	49.9	53.6	3.09	.002
Anxiety	49.1	50.9	1.55	.12
Angry hostility	50.4	55.7	4.66	<.001
Depression	50.9	53.5	2.06	.04
Self-consciousness	49.8	51.6	1.66	.10
Impulsiveness	48.6	52.0	3.15	.002
Vulnerability	50.7	51.9	0.91	.36
Extraversion	47.5	48.3	0.67	.50
Warmth	47.5	44.1	2.81	.005
Gregariousness	50.1	49.5	0.54	.59
Assertiveness	48.7	49.2	0.41	.68
Activity	47.5	48.5	0.93	.35
Excitement-seeking	48.0	52.9	4.83	<.001
Positive emotions	47.7	47.6	0.11	.91
Openness	45.8	46.0	0.14	.89
Fantasy	48.3	47.3	0.93	.35
Aesthetics	48.7	49.8	0.93	.35
Feelings	47.7	46.2	1.24	.22
Actions	45.9	47.5	1.44	.15
Ideas	47.1	49.0	1.68	.09
Values	46.0	43.7	2.07	.04
Agreeableness	49.2	43.8	4.32	<.001
Trust	46.6	42.2	3.42	.001
Straightforwardness	49.5	44.8	4.04	<.001
Altruism	49.1	46.7	1.89	.06
Compliance	49.4	43.8	4.51	<.001
Modesty	50.8	46.9	3.19	.001
Tender-mindedness	51.8	52.1	0.28	.78
Conscientiousness	47.0	44.3	2.31	.02
Competence	48.2	45.1	2.45	.02
Order	46.3	46.5	0.27	.79
Dutifulness	47.0	42.3	3.92	<.001
Achievement-striving	46.9	46.4	0.42	.67
Self-discipline	46.3	46.0	0.23	.82
Deliberation	52.0	48.2	3.48	.001

mensions (Table 4). The magnitudes of these relationships did not appreciably change, when age, sex, race/ethnicity, alcohol/drug use disorders, or paranoid, antisocial, borderline, narcissistic, or obsessive-compulsive personality disorder scores were controlled in logistic regression models. Conversely, the magnitude of the relationships between the personality disorder scores and arrest did not markedly change when included in these models.

For almost all NEO scores, there were only small differences between subjects with a nonviolent-only or violent prior arrest (data not shown). However, violent arrestees had lower mean scores than nonviolent-only arrestees on gregariousness (45.8 *v* 52.0, $P = .02$) and openness to feelings (42.2 *v* 49.2, $P = .004$).

DISCUSSION

Major Findings

We found that several "normal" personality dimensions were associated with prior arrest over the preceding 13+ years. Compared to those who had not been arrested, arrested subjects had significantly higher mean scores on NEO scales of angry hostility, impulsiveness, and excitement-seeking, and the odds of prior arrest increased between 4% and 7% per unit increase on these scales. This suggests that the likelihood of arrest increases, in a dimensional way, with readiness to experience anger (angry hostility), inability to control urges (impulsiveness), and craving excitement and stimulation (excitement-seeking).[28] In contrast, arrested subjects had significantly lower mean scores on NEO scales of trust, straightforwardness, compliance, modesty, dutifulness, and deliberation, and the odds of prior arrest decreased 4% to 5% per unit increase on these scales. This suggests that the likelihood of arrest decreases dimensionally with the disposition to believe that others are honest and well-intentioned (trust), unwillingness to manipulate others (straightforwardness), tendency to inhibit aggression and to forgive others (compliance), degree of humility and self-effacement (modesty), extent to which one is governed by moral obligations (dutifulness), and tendency to think carefully before acting (deliberation).[27]

The association between scores on these NEO scales and prior arrest were independent of demo-

Table 4. Relationship Between NEO Scores in 1993 to 1999 and Prior Arrest (1981 to 1993)

	Odds Ratio (95% CI)	*P* Value
Neuroticism	1.04 (1.01-1.06)	.002
Angry hostility	1.06 (1.03-1.08)	<.001
Impulsiveness	1.04 (1.02-1.07)	.002
Warmth	0.97 (0.95-0.99)	.006
Excitement-seeking	1.07 (1.05-1.10)	<.001
Agreeableness	0.95 (0.93-0.98)	<.001
Trust	0.96 (0.95-0.99)	.001
Straightforwardness	0.95 (0.93-0.98)	<.001
Compliance	0.95 (0.93-0.97)	<.001
Modesty	0.96 (0.94-0.99)	.002
Dutifulness	0.96 (0.93-0.98)	<.001
Deliberation	0.96 (0.93-0.98)	.001

graphic characteristics and alcohol or drug use disorders, which also were related to prior arrest. In addition, the relationships between these NEO dimensions and prior arrest were independent of DSM-IV personality disorder dimensions (paranoid, antisocial, borderline, narcissistic, and obsessive-compulsive) that we found to be associated with arrest. Conversely, these personality disorder dimensions remained associated with arrest, even after controlling for the NEO dimensions; however, only antisocial and obsessive-compulsive personality disorder dimensions were significantly related to arrest, after controlling for alcohol/drug use disorders. This suggests that the relationship between these NEO scales and arrest is not mediated by alcohol/drug use disorders or personality disorder dimensions, including antisocial personality disorder. Thus, "normal" personality traits, as measured by the NEO, may provide insight into identifying individuals vulnerable to criminal arrest, apart from that provided by DSM-IV criteria for antisocial and other personality disorders.

Strengths and Limitations

The study has advantages not available to the few previous studies of the relationship between personality dimensions and arrest. The subjects were participants in an epidemiological follow-up survey in the community and were not selected for treatment or arrest. They underwent thorough evaluation by psychiatrists of DSM-IV symptoms and personality disorder criteria. In addition, the determination of their arrest history was based on the state criminal justice records, not on self-report.

However, several potential limitations of the study must be addressed. First, because the state criminal justice database did not include arrests in states other than Maryland, we may have underestimated the magnitude of the relationship between specific personality dimensions and arrest. Second, the assessment of personality dimensions was based on self-report and may have been misrepresented by some subjects, either deliberately or because they lacked insight; it would have been useful to include information from the observer-report version of the NEO (Form R).[28] Third, given that personality was assessed currently and arrest retrospectively, we cannot conclude definitively that NEO personality features predict arrest; longitudinal studies of the relationship are needed to more rigorously support the findings. However, there is evidence of the long-term stability of NEO personality features in individuals who are at least 30 years old.[30] Fourth, it is important to note that arrest is not equivalent to criminal activity; a person engaging in a criminal act may not be arrested, whereas a person may be arrested for a crime that he/she did not commit. Sociodemographic and personality characteristics could influence the likelihood of arrest, independently of criminal behavior.[2]

Implications

Despite these potential limitations, our findings support the notion that specific "normal" personality dimensions are associated with arrest in the community. These relationships are independent of demographic characteristics, alcohol/drug use disorders, and DSM-IV axis II personality disorder dimensions, including antisocial personality scores. There is often an interest in clinical and other settings to identify individuals who, in certain circumstances, may be at increased risk of criminal activities and arrest. Our findings suggest that scores on NEO facets may provide additional useful information for this task, beyond that provided by evaluation of DSM-IV personality disorder criteria. Moreover, in settings where trained clinicians are not available for a complete evaluation of axis II criteria, or time is limited, an assessment of antisocial personality criteria, as well as completion of the NEO, may be useful in evaluating the proneness of individuals to criminal arrest. Additional research is needed to clarify the interaction of personality features with environmental characteristics that promote or inhibit criminal involvement and arrest.[31] Understanding these relationships is important for developing strategies to reduce the likelihood of criminal activity and arrest in individuals with extreme scores on specific personality dimensions.

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