# Intelligence (IQ) and Crime

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There is extant research on the relationship between psychopathy and violence demonstrating the predictive capabilities of psychopathic traits on violent offending (Cornell et al., 1996; Hare, 2006; Laurell, Belfrage, & Hellstrom, 2010; Leistico, Salekin, DeCoster, & Rogers, 2008; Malterer, Lilienfeld, Neumann, & Newman, 2010; Serin, 1991). However, literature on psychopathy and IQ has produced mixed results. For example, Walsh, Swogger, and Kosson (2004) found that low IQ psychopathic participants were the most violent. Salekin, Neumann, Leistico, and Zalot (2004) found verbal intelligence and the combination of creative, practical, and analytical intelligence may be higher in psychopathic offenders, compared with nonpsychopathic offenders. Vitacco, Neumann, and Jackson (2005) indicated that interpersonal dimension of psychopathy positively predicted IQ, whereas the affective and behavioral factors negatively predicted IQ. Furthermore, Nijman, Merckelbach, and Cima (2009) demonstrated that performance IQ (PIQ) over verbal IQ (VIQ) was related modestly to certain key aspects of psychopathy. Recognizing these inconsistencies in the literature, the goal of the present study is to examine the relationship between psychopathy and IQ level and how these factors may affect the severity of violent offending.

## Prior Research

Hart, Kropp, and Hare (1988) examined a sample of 231 inmates rated on psychopathy (via the Psychopathy Checklist [PCL]) before their release from prison and found that the inmates scoring in the top third of the distribution of psychopathy scores were four times more likely to commit a violent crime postrelease than those inmates scoring in the bottom third of the distribution. Harris, Rice, and Cormier (1991) found violent behavior could be predicted by psychopathy with an 18% accuracy among 169 former forensic patients. Cornell et al. (1996) conducted a study of 106 male inmates from the Staunton Correctional Center in Staunton, Virginia. Their results indicated that instrumental violent offenders scored higher on psychopathy than reactive violent offenders or nonviolent offenders; instrumental offenders were more superficial, manipulative, impulsive, irresponsible, and lacking in feelings for others (p. 789).

Among adults, psychopathy has been found to be a robust predictor of criminal violence (Salekin, Rogers, & Sewell, 1996), and these individuals are more likely to commit violent crimes in an instrumental, goal-oriented manner (Cornell et al., 1996; Serin, 1991; Woodworth & Porter, 2002). Hare and McPherson (1984) and Serin (1991) also noted that adult psychopaths are more likely than nonpsychopaths to use weapons in their assaults against others.

Walsh, Swogger, and Kosson (2004) tested the prediction accuracy of psychopathy and IQ on violent behavior using a sample of 326 white and 348 black male inmates. For white inmates, violence was significantly correlated with psychopathy ($r = .20$) and IQ ($r = -.13$) at the $p < .05$ level. For black inmates, however, violence was only significantly correlated with psychopathy ($r = .20$, $p < .05$). Using comparisons of extreme groups (e.g., low IQ [non]/psychopathic, high IQ [non]/psychopathic), they found that low IQ psychopathic inmates were the most violent across the groups due to additive rather than interactive effects of the two factors (Walsh, Swogger, & Kosson, 2004).

With regards to psychopathy in children and adolescents, much of the research demonstrates that correlates of adult psychopathy extend downward to children and adolescents (Frick, O'Brien, Wootton, & McBurnett, 1994; Lynam, 1996). For example, research by Lynam (1996) suggested that youth with oppositional defiant disorder, conduct disorder, and attention deficit hyperactivity disorder symptoms have

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neuropsychological correlates similar to those of psychopathic adults. Other research showed that children and adolescents demonstrating callous – unemotional traits and conduct disorder are at greater risk of exhibiting antisocial behavior and tend to have earlier contact with the law compared to those children exhibiting conduct disorder but not callous – unemotional traits (Barry et al., 2000; Christian, Frick, Hill, Tyler, & Frazer, 1997; Cleckley, 1976; Frick, 1998; Hare, 1991). Children exhibiting these traits have also been found to show a preference for sensation seeking, which is widely displayed and linked to studies and theories of adult psychopathic behavior (Frick et al., 1994; Lykken, 1995).

Murrie, Cornell, Kaplan, McConville, and Levy-Elkon (2004) explored the relationship between psychopathy scores (using the PCL) and violence severity (e.g., nonviolent, reactive violent, or instrumentally violent) among a sample of 113 adolescent males. Their sample consisted of 56 black youth, 47 white youth, and 10 Hispanic or other youth. Results yielded a medium effect size for the association between psychopathy scores and instrumentally violent crimes ($r = .36$, AUC = .68). They indicated that these results were also similar to those found among exclusively adult samples.

Research on violent offenses committed by psychopathic individuals, however, has mixed results pertaining to IQ. Walsh et al. (2004) found that low IQ psychopathic participants were the most violent compared to high IQ psychopathic participants. Salekin et al. (2004) noted that verbal intelligence and the combination of creative, practical, and analytical intelligence may be higher in psychopathic offenders than it is in other, nonpsychopathic offenders. Vitacco et al. (2005) reported that the interpersonal dimension of psychopathy positively predicted IQ, whereas the affective and behavioral factors negatively predicted IQ. While their sample was limited to sexual offenders, Nijman et al. (2009) demonstrated that PIQ over VIQ was related modestly to certain key aspects of psychopathy. Megargee and Carbonell (1993), in conjunction with Heilbrun (1979), showed that among whites, offenders low in IQ but high in psychopathy were more prone to committing an instrumentally violent or potentially violent offense than those individuals low in IQ and low in psychopathy or high in IQ with either low or high psychopathy levels. For blacks, however, their results were opposite, displaying high IQ with either low or high psychopathy being more prone to commit instrumentally or potentially violent offenses (Heilbrun, 1979; Megargee & Carbonell, 1993). These mixed results present difficulties for establishing a solid understanding of the relationship associated with IQ, psychopathy, and violence. This study hopes to address the gap in the literature by further exploring the relationship between IQ, psychopathy, and violent offender typologies.

## Current Study

On the basis of past research, it is difficult to establish expectations regarding IQ and psychopathy and their predictive capabilities of violent offender typology. While some research presents us with the expectation that low IQ psychopathic individuals will be the most violent, other research suggests high IQ psychopathic individuals as the most violent. We hope to clarify which levels of IQ and psychopathy (i.e., low IQ/low psychopathy, low IQ/high psychopathy, high IQ/low psychopathy, high IQ/high psychopathy) are best associated with each violent offender typology (i.e., nonviolent, potentially violent, instrumentally violent, angry violent) and whether these results differ across race.

## Method

### *Participants*

Data for this study were drawn from the Longitudinal Study of Violent Criminal Behavior in the United States, 1970–1984 (Megargee & Carbonell, 1996). This is an extensive longitudinal database collected on 1,345 young adult male offenders admitted to the Federal Correctional Institution (FCI) in Tallahassee, Florida, from November 3, 1970, to November 2, 1972. Each inmate was classified as a subgroup of violent offenders based on definitions from the National Crime Information Center Uniform Offense Codes (further described below). As part of this classification process, an extensive battery of tests was administered to each inmate. These tests included

intelligence-level tests, psychological tests of personality and ability, and behavioral observations. Supplemental data were drawn from structured interviews, extensive case histories, and physiological and medical data. Table 1 provides the descriptive information for all study variables.

### *Dependent variables*

Type of violent offender Based on the National Crime Information Center Uniform Offense Codes, violence severity is categorized and defined as (1) angry violent, in which the apparent goal was to injure the victim, (2) instrumentally violent, in which the aggressive behavior was a means to an end (as in a robbery), (3) potentially violent, as evidenced by making threats or carrying weapons but in which the offender was not accused of any violent offenses, and (4) nonviolent, in which the offender had not been charged with violent criminal behavior (Megargee & Carbonell, 1996).

### *Independent variables*

Psychopathy Psychopathy was assessed based on in-depth interviews. The instruments utilized were the Minnesota Multiphasic Personality Inventory (MMPI) and the California Psychological Inventory (CPI). Psychopathy was defined by an index based on the CPI Socialization (So) scale and the MMPI Psychopathic Deviate (Pd) scale.

IQ level The Beta IQ test was administered as a means of intelligence testing, with a score of 100 as the threshold for normal or average intelligence. Inmates were then split into one of two groups, with low IQ being below 100 and high IQ being above 100.

### *Control variables*

Age Inmates were classified as being under 30 or 30–45, with 1,087 individuals under 30 and two between 30 and 45. The two inmates between 30 and 45 were not included in this study.

**Table 1** Descriptive statistics.

| *Variables* | *N* | *Mean* | *SD* | *Min* | *Max* |
|---|---|---|---|---|---|
| Dependent variables | | | | | |
| *Type of violent offender* | 971 | 1.649 | 1.347 | 0 | 3 |
| Nonviolent offender | 346 | | | | |
| Potentially violent offender | 73 | | | | |
| Instrumentally violent offender | 128 | | | | |
| Angry violent offender | 424 | | | | |
| Independent variables | | | | | |
| *Level of psychopathy and Beta IQ* | 832 | 2.66 | 1.098 | 0 | 3 |
| lowIQ/lowpsychopathy | 188 | | | | |
| highIQ/lowpsychopathy | 130 | | | | |
| lowIQ/highpsychopathy | 295 | | | | |
| highIQ/highpsychopathy | 219 | | | | |
| Control variables | | | | | |
| *Age* | 1089 | 0.017 | 0.386 | 0 | 1 |
| Under 30 | 1087 | | | | |
| *Race* | 1345 | 0.730 | 0.973 | 0 | 1 |
| Black | 475 | | | | |
| White | 856 | | | | |
| Highest grade attained | 1069 | 9.81 | 2.205 | 1 | 16 |
| Problems in interpersonal relations | 1077 | 9.11 | 3.142 | 5 | 19 |
| Childhood and adolescent maladjustment and deviance | 1038 | 15.56 | 4.990 | 9 | 33 |
| Prior record | 1158 | 12.20 | 4.431 | 5 | 21 |

Race Race of the inmate was subdivided into white, black, red, or other. With only 10 individuals categorized as red (.7%), and only 4 as other (.3%), this study focused primarily on white (63.6%) or black (35.3%) individuals, and those inmates classified as red or other were not included.

Highest grade attained Information on highest grade attained was available on 1,086 individuals. Ranging from 1 to 16 (first grade to fourth year of college), the mean highest grade attained was 9.81 ($SD = 2.20$).

Problems in interpersonal relations A scale assessing problems in interpersonal relations was created based on rater observations using the Presentence Investigation Reports (PSI) and the intake interviews. Ratings of the two scales were combined and frequency distributions were computed on these ratings. Global scales were then constructed by differentially weighting different items and combining them on the basis of their distributions and manifest content (Megargee & Carbonell, 1996). The scale for problems in interpersonal relations ranges from 5 to 19, with 19 being the highest number of problems identified ($M = 9.11$; $SD = 3.14$).

Childhood and adolescent maladjustment and deviance A scale assessing childhood and adolescent maladjustment and deviance was created in the same manner as the aforementioned problems in interpersonal relations. This scale ranged from 9 to 33, with 33 being the highest number of maladjustment and deviant behaviors identified ($M = 15.56$; $SD = 4.99$).

Prior record In the same fashion as the previous global scales, prior record of the inmates was created based on a combined rate from the PSI and intake interview scales. This variable measured the number of prior offenses for each inmate. Prior record ranged from 5 to 21 prior offenses ($M = 12.20$; $SD = 4.43$).

## Analysis Plan

The analysis below progressed using several multinomial regression models to determine the ability to predict an individual's violent offending type, or subgroup (i.e., potentially violent, instrumentally violent, or angry violent), based on the individual's psychopathy and IQ levels (i.e., low IQ/low psychopathy, high IQ/low psychopathy, low IQ/high psychopathy, high IQ/high psychopathy). Eight multinomial logistic regression models were estimated. Each analysis used low IQ/low psychopathy nonviolent offenders as the reference category in order to examine all possible contrasts. The first model estimated looked at the individual effects of psychopathy and IQ level on the type of violent offender. The second model included the covariates age, race, highest grade attained, problems in interpersonal relations, childhood and adolescent maladjustment and deviance, and prior record in order to examine the influence, if any, these factors have on the type of violent offender. This modeling was then repeated with the following outcome variables: (1) angry violent versus instrumentally violent only; (2) angry violent versus potentially violent only; and (3) instrumentally violent versus potentially violent only. These separate models were estimated to determine if violent offenders differ as a function of motivation. In other words, whether the ultimate goal of the offender involved was to injure the victim, was a means to an end, or was to be perceived as threatening.

## Results

### *IQ and psychopathy level on type of violent offender*

Table 2 provides the results of the first model estimation of psychopathy and IQ on the typology of violent offender. The results displayed that those individuals with high IQ/high psychopathy were significantly more likely to be instrumentally violent offenders compared with those individuals with high IQ/low psychopathy or low IQ/high psychopathy levels ($RR = -.519$, $p < .05$). They were also more likely to be instrumentally violent than any of the other subgroups of violent offender (i.e., potentially violent and angry violent).

Race was a significant factor for instrumentally violent offenders (see Table 3). Black inmates were significantly more likely to be classified as instrumentally violent offenders than white inmates

**Table 2** Multinomial logistic regression assessing the relationship between IQ level, psychopathy, and type of violent offender with low IQ/low psychopathy nonviolent offenders as the reference category.

| *Variables* | *Group 2 (potentially violent)* | *Group 3 (instrumentally violent)* | *Group 4 (angry violent)* |
|---|---|---|---|
| | Relative risk ratio (RR) | Relative risk ratio (RR) | Relative risk ratio (RR) |
| High IQ/low psychopathy | −0.137 | 0.318 | −0.102 |
| Low IQ/high psychopathy | 0.211 | 0.220 | 0.154 |
| High IQ/high psychopathy | −0.03 | −0.519* | −0.044 |
| Log likelihood = −1089.7906 | | | |
| Model chi-square = 8.52 | | | |
| Pseudo R-square = 0.0039 | | | |
| N = 912 | | | |

$p < .05^{*}$, $p < .01^{**}$, $p < .001^{***}$

**Table 3** Multinomial logistic regression assessing the relationship between IQ level, psychopathy, and type of violent offender including the covariates age, race, highest grade attained, problems in interpersonal relations, childhood and adolescent maladjustment and deviance, and prior record with low IQ/low psychopathy nonviolent offenders as the reference category.

| *Variables* | *Group 2 (potentially violent)* | *Group 3 (instrumentally violent)* | *Group 4 (angry violent)* |
|---|---|---|---|
| | Relative risk ratio (RR) | Relative risk ratio (RR) | Relative risk ratio (RR) |
| High IQ/low psychopathy | 0.294 | 0.503 | 0.128 |
| Low IQ/high psychopathy | 0.012 | 0.099 | −0.119 |
| High IQ/high psychopathy | −0.281 | −0.579 | −0.013 |
| Age (0 = under 30) | −1.443 | −1.427 | −1.469 |
| Race (0 = black) | −0.417 | −0.867*** | −0.242 |
| Highest grade attained | −0.137 | 0.010 | −0.078 |
| Problems in interpersonal relations | 0.236** | 0.187** | 0.257*** |
| Childhood and adolescent maladjustment and deviance | −0.069 | −0.082 | −0.073* |
| Prior record | 0.013 | 0.034 | 0.026 |
| Log likelihood = −590.04899 | | | |
| Model chi-square = 68.69*** | | | |
| Pseudo R-square = 0.0550 | | | |
| N = 521 | | | |

$p < .05^{*}$, $p < .01^{**}$, $p < .001^{***}$

($RR = -.867$, $p < .001$), and significantly more likely to be classified as instrumentally violent offenders than any other type of violent offender. Those individuals with problems in interpersonal relations displayed significance across all subgroups of violent offender type; potentially violent ($RR = .236$, $p < .01$), instrumentally violent ($RR = .187$, $p < .01$), and angry violent ($RR = .257$, $p < .001$). Angry violent offenders were significantly more likely to have experienced childhood and adolescent maladjustment and deviance compared to potentially violent and instrumentally violent offenders ($RR = -.073$, $p < .05$). There were no significant differences in IQ/psychopathy levels across all violent offender types.

### *Angry violent versus instrumentally violent only*

The first model estimating the effects of psychopathy and IQ level on angry violent and instrumentally violent offenders, displayed in Table 4, revealed that those individuals with high IQ/high psychopathy were significantly more likely to be angry violent than instrumentally violent ($RR = .475$, $p < .05$).

Once the covariates were added to the model, race was the only variable that displayed significance. The results presented in Table 5 suggest that white inmates were more likely to be angry violent offenders than black inmates ($RR = .614$, $p < .05$), and that white inmates were more likely to be classified as angry violent offenders than instrumentally violent offenders.

### *Angry violent versus potentially violent only*

No significant difference was demonstrated between angry violent offenders and potentially violent offenders in both model comparisons.

### *Instrumentally violent versus potentially violent only*

The model comparing psychopathy and IQ levels displayed no significant differences between instrumentally violent and potentially violent offenders. There were also no significant differences between instrumentally violent and potentially violent offenders in the model comparison that included the covariates.

## Discussion

This entry sought to examine the linkage between psychopathy, IQ, and violent typologies using data from the Longitudinal Study of Violent Criminal Behavior in the United States, 1970–1984 (Megargee & Carbonell, 1996). This study also explored the predictive capabilities of psychopathy and IQ on type of violent offending typologies. It was found that those individuals with high IQ/high psychopathy were more likely to be instrumentally violent offenders and black. This is consistent with Megargee and Carbonell (1993), wherein they found that blacks with high IQ were more likely to be instrumentally violent than low IQ individuals. Megargee and Carbonell (1993) also noted that blacks with high IQ/high psychopathy are more likely to be instrumentally violent. When instrumentally violent and angry violent were examined exclusively, it was found that those individuals with high IQ/high psychopathy were more likely to be angry violent and white. Also notable is the significance of problems in interpersonal relations. This factor was not exclusive to one type of violent offender, however displayed greater significance for those angry violent offenders ($p < .001$). Those inmates that experienced child and adolescent maladjustment and deviance were more likely to be angry violent, which is suggestive of pent-up aggression.

The data from the Longitudinal Study of Violent Criminal Behavior provided a limited but valuable opportunity to estimate the impact of psychopathy and IQ level on violent offender type.

**Table 4** Multinomial logistic regression assessing the relationship between IQ level, psychopathy, and type of violent offender – looking specifically at instrumentally violent offenders versus angry violent offenders with low IQ/low psychopathy instrumentally violent offenders as the reference category.

| *Variables* | *Group 2 (angry violent)* |
|---|---|
| | Relative risk ratio (RR) |
| High IQ/low psychopathy | −0.420 |
| Low IQ/high psychopathy | −0.066 |
| High IQ/high psychopathy | 0.475* |
| Log likelihood = −904.42329 | |
| Model chi-square = 6.37 | |
| Pseudo R-square = 0.0035 | |
| N = 912 | |

$p < .05^{*}$, $p < .01^{**}$, $p < .001^{***}$

**Table 5** Multinomial logistic regression assessing the relationship between IQ level, psychopathy, and type of violent offender including the covariates age, race, highest grade attained, problems in interpersonal relations, childhood and adolescent maladjustment and deviance, and prior record – looking specifically at instrumentally violent offenders versus angry violent offenders with low IQ/low psychopathy instrumentally violent offenders as the reference category.

| *Variables* | *Group 2 (angry violent)* |
|---|---|
| | Relative risk ratio (RR) |
| High IQ/low psychopathy | −0.377 |
| Low IQ/high psychopathy | −0.220 |
| High IQ/high psychopathy | 0.569 |
| Age (0 = under 30) | −0.041 |
| Race (0 = black) | 0.614* |
| Highest grade attained | −0.087 |
| Problems in interpersonal relations | 0.070 |
| Childhood and adolescent maladjustment and deviance | 0.009 |
| Prior record | −0.008 |
| Log likelihood = −496.57773 | |
| Model chi-square = 51.33*** | |
| Pseudo R-square = 0.0491 | |
| N = 521 | |

$p < .05^{*}$, $p < .01^{**}$, $p < .001^{***}$

While this study provided in-depth longitudinal data on violent criminal behavior from the entire United States, the sample was exclusively male, exclusively individuals under 30 years of age, and only included those inmates of one institution (i.e., FCI) during a specific time period (i.e., 1970–1984). It remains unknown whether these results are generalizable to other institutions during other time periods. It is also important to note that a similar study should be conducted with female inmates to further research the predictive capabilities of psychopathy and IQ level on violent offender type. Future research could also split the sample by age to distinguish between juvenile and adult offenders. This would enable the researcher to corroborate or refute prior studies on the topic involving exclusively juvenile or exclusively adult offenders.

These findings show that high IQ/high psychopathy individuals are more likely to be instrumentally and angry violent. While black individuals are more likely to be instrumentally violent and white individuals more likely to be angry violent, it is pertinent to understand that these individuals with high levels of psychopathy and high IQs, regardless of their race, are significantly more likely to be engaged in serious violent offenses. This knowledge should help to employ treatment programs for those psychopathic individuals in hopes of preventing their involvement in violent crimes; that is, if they are diagnosed by a therapist or institutionalized at a mental health facility. Those individuals who experienced problems in interpersonal relationships were not exclusively one type of violent offender; they were potentially violent, instrumentally violent, and angry violent. While it may not be readily available or sought out by these individuals, treatment is necessary at the earliest stages – that is, single/group therapy sessions or support groups – to help prevent these individuals from being involved in violent offenses. Understandably, this is not something that can be forced upon an individual, and the problems most likely are unbeknownst to or denied by these individuals, but perhaps the knowledge and recognition of these problems could be confronted by outsiders or other parties involved if the "signs" were easily detectable. In other words, it is suggested that local communities provide helpful information (e.g., via mail or flyers) to all their inhabitants so these problems can be recognized prior to a serious incident occurring.

SEE ALSO: Antisocial Behavior and Crime; Personality and Crime.

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