
Violent Offender Research and Implications for the Criminal Justice System

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Some offenders are at very high risk to reoffend. Research conducted at the author's institution and elsewhere shows that psychopathic offenders are especially likely to be violent, that future violence can be predicted with considerable accuracy among men who have committed at least 1 violent offense, and that treatment programs to reduce dangerousness do not always have the intended effects (i.e., they may actually increase the dangerousness of some individuals). Implications for the criminal justice system pertain to release following insanity acquittal, offender sentencing and parole, preventive detention, offender treatment, and program evaluation.

As discussed below, recent research on violent offenders has yielded insights into a group of men who are at particularly high risk for committing new violent offenses. This research also yielded methods for the prediction of future violence among male offenders with levels of accuracy that only 15 or 20 years ago were thought to be difficult, if not impossible, to attain. In this article, I review how research by my colleagues and me on these two topics was stimulated by an evaluation of an intensive therapeutic community program for violent offenders. I then briefly review our work on the prediction of violent reoffending and on psychopathy and its relationship to violent offending. I conclude by outlining the implications of our research for the criminal justice system.

Evaluation of a Therapeutic Community Program for Violent Offenders

In the 1960s and 1970s, the maximum-security Oak Ridge Division of the Mental Health Centre in Penetanguishene, Ontario, Canada, was the site of an ambitious treatment program that tried to alter the personality of participants so that they would be less likely to commit acts of violence when released into the community. At the time, the program's developer, Elliot Barker, thought it would be beneficial for both psychotic and nonpsychotic patients but that it would be especially beneficial for those who conformed to Hervey Cleckley's (1964) description of a psychopath as described in *The Mask of Sanity*. Cleckley described psychopaths as superficially charming, untruthful and insincere, and lacking in both remorse and judgment. Hare (1970) reviewed the treatment outcome literature for psychopaths and, although

acknowledging the pessimistic findings to that date, suggested that a therapeutic community that reshaped the social milieu might change some of the basic personality characteristics and interpersonal behavior of psychopaths.

The program at Oak Ridge was based on those described by Maxwell Jones (1953) and on the humanistic philosophy of Martin Buber (1961). The program has been the subject of several articles in the professional literature (Barker, 1980; Barker & Mason, 1968a, 1968b; Barker, Mason, & Wilson, 1969; Barker & McLaughlin, 1977; Harris, Rice, & Cormier, 1991b, 1994; Rice, Harris, & Cormier, 1992; Weisman, 1995). The program was intense, with up to 80 hours of structured therapeutic activity per week. The program was peer led, and direct professional staff involvement was deliberately limited. Unlike other therapeutic community programs, this program was not completely voluntary. Program participants spent a large proportion of their time in community meetings and in active dialogue with one another, all designed to produce insight and promote the development of cooperation, responsibility, caring, and empathy.

The clinical files of the patients in the program as well as a comprehensive retrospective review of the program (Weisman, 1995) attest to the program's integrity. The program was also reviewed, before outcome data were known, by blue-ribbon panels of experts who commented glowingly: "This is an exciting program which has the hallmark of being right as . . . the final model of the DNA molecule looked right to Watson & Crick.

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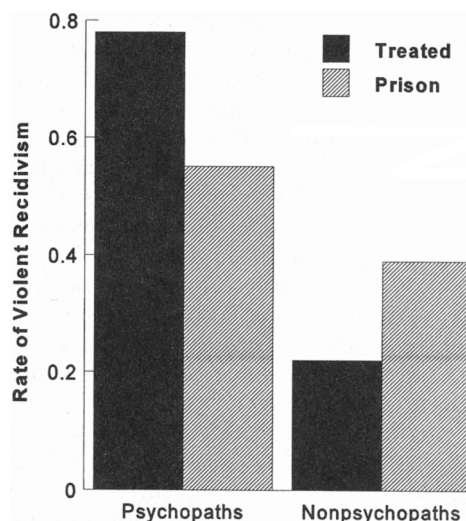
Here the impossible is apparently happening—psychopaths are being treated with success . . . Results of the program [include] a very low recidivism rate” (Butler, Long, & Rowsell, 1977, pp. 3, 28). The Government of Canada (1977) stated: “[The program designer has] developed the techniques that are the most fruitful of any in the universe at the present time” (p. 45).

When I began working at the Mental Health Centre in 1975, the program had a very good reputation among most staff and patients, and from what I could observe, the program was indeed a place where prosocial behavior was rewarded and most antisocial and psychopathic behavior was not. After reading the glowing reviews of the program, my colleagues and I decided that it was worth evaluating empirically. Before we began, however, the program was discontinued in 1978 for political reasons that had nothing to do with its effectiveness. Our evaluation was completely retrospective, and a random assignment study was not possible.

The evaluation study (Harris, Rice, & Cormier, 1994; Rice et al., 1992) included 146 men treated for at least 2 years in the therapeutic community (the average time in the program was 5 years) and 146 untreated participants who spent time in prison instead. Virtually all participants had previously been admitted to Oak Ridge for a psychiatric assessment prior to trial for a violent offense. Each untreated participant was matched to a treated participant who was the same age, had committed the same offense, and had an equally serious criminal history. Psychopathy was measured using the 20-item Revised Psychopathy Checklist (PCL-R; Hare, 1991). The two groups were equivalent in mean psychopathy scores. Participants’ recidivism was examined after an average of 10 years at risk. Men who were arrested for subsequent violent offenses (ranging from one common assault to multiple homicides and including all sexual assaults) were considered failures, as were a few men whose records showed that they had committed violent offenses but who were returned to Oak Ridge rather than receiving criminal charges.

Was the program effective? Overall, the results were disappointing: The violent recidivism rate was 40%, with little difference between the treated and untreated groups. However, because the program was thought to be especially suitable for psychopaths, we examined the outcome for the psychopaths and nonpsychopaths separately. The results we obtained (shown in Figure 1) were startlingly different from expectations: There was a large interaction such that the treated psychopaths had significantly worse outcomes than their untreated counterparts, whereas the reverse was true for the nonpsychopaths. These findings, along with others, showing that psychopaths do poorly compared with other participants in therapeutic community programs (Ogloff, Wong, & Greenwood, 1990) led us to believe that psychopaths differed fundamentally from nonpsychopathic offenders. We speculated that, compared with prison, the treatment program raised psychopaths’ self-esteem and thereby increased aggression (Baumeister, Smart, & Boden, 1996). Also, it is possible

Figure 1
Rates of Violent Recidivism for Psychopaths and Nonpsychopaths Who Were Treated in the Therapeutic Community or Who Went to Prison



that, whereas the nonpsychopaths in the program learned how to be more empathic and concerned about others, the psychopaths simply learned how to appear more empathic. They used this information so as to better manipulate and deceive others (Harris, Rice, & Cormier, 1994), whereas their counterparts in prison learned more about ways to commit crimes without being caught. In the absence of any true empathy, the better manipulation skills of the treated psychopaths allowed them to use and abuse others (in both violent and nonviolent ways).

Another surprising result at the time was the relatively high degree of accuracy with which a combination of historical and psychological variables predicted outcome. We obtained a multiple correlation greater than .50, which was considerably higher than the .40 “sound barrier” that seemed impossible to break in previous studies (Menzies, Webster, & Sepejak, 1985). The best predictor of violent recidivism was the score on the PCL-R. It alone predicted better than any combination of other criminal history variables in a multiple regression, and contrary to our initial predictions, psychopathy added significantly to the best possible predictive accuracy that was based solely on criminal history.

The results of this study led us to pursue two lines of research, one about the prediction of future violent criminal offending and the other about the construct of psychopathy.

The Development of a Violence Prediction Instrument

The prediction of violence is one of the most difficult but important tasks facing those in forensic mental health

and corrections. A prevailing view just 15 years ago was that accurate prediction was impossible (Monahan, 1981). Most assessments of dangerousness were (and still are) based exclusively on unaided clinical judgment. Yet, in almost every situation in which they have been studied, actuarial predictions have outperformed unaided human judgment (Meehl, 1954, 1986, 1996a). Meehl (1986) concluded, "There is no controversy in social science that shows such a large body of qualitatively diverse studies coming out so uniformly in the same direction as this one" (pp. 373–374). Mossman (1994) recently showed again the superiority of actuarial methods over clinical methods for long-term predictions in a meta-analysis of studies of predictions of violence specifically.

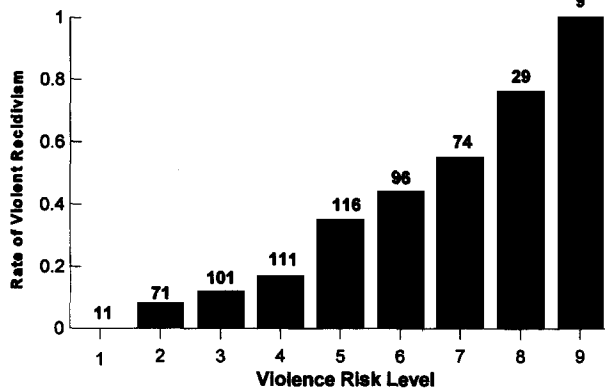
The predictive accuracy achieved in the therapeutic community study described above led us to conduct a subsequent study (Harris, Rice, & Quinsey, 1993) to develop an actuarial instrument for violence prediction among serious offenders. The subjects were 618 men (some of whom had also been in the study described above) who had been admitted to our institution for an assessment prior to trial for a violent offense. Approximately half of the men were returned to our institution for treatment following trial (most having been found not guilty by reason of insanity); the other half were sentenced to prison and were matched to the first group on age, index offense, and offense history. Fifty variables were considered for inclusion as predictors because they had been found to be related to violent or general criminal recidivism in previous studies or because they were hypothesized on theoretical grounds to be related. These variables reflected demographic information, criminal history, psychiatric history, and childhood history. The outcome variable was violent recidivism as defined above, except that the average time at risk was seven years. Overall, 31% of the subjects failed by committing another violent offense.

We took several steps to ensure that the final actuarial instrument, which we called the Violence Risk Appraisal Guide (VRAG), would perform well on cross-validation. We divided our sample into subgroups by two different methods: First, we divided them randomly into two halves, and, second, we divided them into those who were sent to the hospital for treatment versus those who were sent to prison. We then used multiple regression techniques to identify for each of the four subgroups, and for the entire sample, up to 4 variables in each of the four categories to contribute to a stepwise regression equation. Only those 19 variables that were selected in at least three out of the five samples were considered for inclusion in the final instrument. A final analysis conducted on the entire sample identified 12 variables for the final instrument. These variables were as follows: PCL-R score; elementary school maladjustment; age at index offense; *Diagnostic and Statistical Manual of Mental Disorders* (third edition; *DSM-III*; American Psychiatric Association, 1980) diagnosis of personality disorder; separation from parents when the participant was under age 16; failure on prior conditional release; crimi-

nal history for property offenses; marital status; *DSM-III* diagnosis of schizophrenia; victim injury in index offense; history of alcohol abuse; and male victim in index offense. For these 12 variables, their weights in the VRAG were not regression weights but rather were those determined by their univariate relationships to outcome (see Harris et al., 1993, for details). The variables are listed above in descending order of their weights. All were positively related to violent recidivism except age, diagnosis of schizophrenia, and victim injury, which were negatively related. The correlation between the scores on the VRAG and violent recidivism was .44 and, choosing the 80th percentile of risk scores as a cutoff, classification accuracy was 74%, with a sensitivity of .40 and a specificity of .88.

Because we were interested in applying the VRAG to both forensic psychiatric patients and to serious violent offenders in general, we conducted a number of subsidiary analyses to ensure that it performed adequately for both the treated and prison groups separately. We found that the VRAG performed equally as well for each separate group as for the entire mixed sample; that is, it worked just as well for the men who remained in the hospital for treatment (most of whom were insanity acquittees) as for those who were sentenced to prison after their brief assessment (see Harris et al., 1993, for details). Next, because the negative relationship between a diagnosis of schizophrenia and violent recidivism seemed surprising to many people, we also examined the relationship of schizophrenia to violent recidivism for the insanity acquittees alone. We found a Pearson correlation of $-.16$ for the 238 insanity acquittees ($p < .03$, two-tailed) compared with a correlation of $-.17$ for the entire sample. This was similar to the finding reported in an earlier study of the same sample of insanity acquittees that a psychotic diagnosis was negatively related to both general and violent recidivism (Rice, Harris, Lang, & Bell, 1990). These findings seem surprising in view of reports in the literature that having a serious mental disorder (schizophrenia or major affective disorder) is modestly positively related to violent behavior (Monahan, 1992; Swanson, 1993). However, more recent evidence shows that the obtained relationship between serious mental disorder and violent behavior is primarily accounted for by the presence of certain symptoms (e.g., feeling that people wish to do one harm, feeling that one's mind is dominated by forces beyond one's control, believing that one's thoughts are being taken away or broadcast, and believing that others are following one) seen in some individuals with psychosis (Link & Stueve, 1994, 1995; Swanson, Borum, Swartz, & Monahan, 1996). Of course, some of these same beliefs might be common among antisocial individuals in whom they reflect not delusions but reality. Thus, it remains to be seen whether these beliefs predict violent behavior among offenders. In addition, it must be pointed out that the measures used in the Link and Stueve and Swanson et al. studies pertain to self-reported violent acts rather than officially registered violent criminal recidivism. Thus, the apparent discrepancy between the

Figure 2
Rates of Violent Recidivism for Subjects at Each of Nine Risk Levels



Note. Shown above the bars are the number of subjects at each risk level.

negative relationship of violent recidivism and diagnosis of schizophrenia in the VRAG and the positive relationship reported between violent behavior and diagnoses or symptoms of serious mental disorder in the population at large may simply be a function of the comparison samples used (i.e., largely antisocial individuals in the former case and largely nonantisocial individuals in the latter case). This explanation is supported by findings of other investigators on the postrelease commission of criminal violence among incarcerated or hospitalized offenders that show either no relationship or a negative relationship between serious mental disorder and future violence (Bonta, 1996; Teplin, Abram, & McClelland, 1994; see also Gardner, Lidz, Mulvey, & Shaw, 1996, for a similar result among psychiatric emergency room patients).

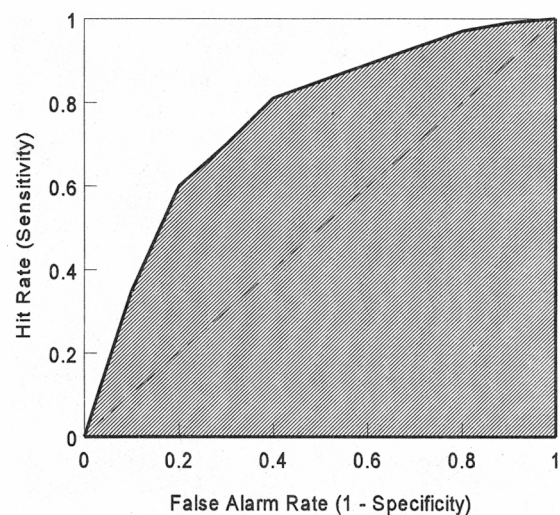
The relationship between VRAG scores and violent recidivism for our entire sample is shown in Figure 2. To construct the figure, scores were categorized into nine equally spaced intervals. The figure shows that none of those in the lowest category and all of those in the highest category committed another violent offense during the follow-up period. One of the advantages of the VRAG is that one can assign a probability of violent recidivism to new individuals rather than simply making a dichotomous prediction.

The most common methods of assessing accuracy of violence predictions in previous studies have used measures derived from 2×2 contingency tables using dichotomous measures of outcome and a dichotomous predictor (Mossman, 1994). These common measures include sensitivity and specificity, positive and negative predictive power, and relative improvement over chance. But, to varying degrees, all of these measures are a function of the base rate of violence (31% in our sample). Because

different studies have obtained widely different base rates of violent recidivism, it has been extremely difficult to compare the accuracy of predictions across studies. Swets (1988, 1992) proposed the use of the relative operating characteristic (ROC) as a comprehensive way to illustrate the performance of a diagnostic test or prediction. An ROC is simply a plot of the probability of a hit (or sensitivity) as a function of the probability of a false alarm (or $1 - \text{specificity}$). Recently, we (Rice & Harris, 1995) and others (e.g., Mossman, 1994) proposed the use of the ROC to evaluate the accuracy of violence prediction. The ROC for the VRAG is shown in Figure 3, which indicates that as the probability of a hit increased, so did the probability of a false alarm.

The overall accuracy of a test can be indexed by how far its ROC curve lies above the diagonal (where its accuracy would be at chance) in the direction of the upper left corner (where its accuracy would be perfect). The proportion of the total area of the square subtended by the ROC is the area under the curve. This area is conceptually the same and numerically virtually identical to the common-language effect size (McGraw & Wong, 1992). In the case of the VRAG's performance on the construction sample, the area was .76. This is equivalent to a Cohen's (1992) d of 1, which, by commonly accepted standards, is a large effect. In fact, Cohen's widely used guidelines propose that a d of .2 be considered a small effect, .5 moderate, and .8 large. Although effect sizes much larger than this are possible, they are not common in the psychological domain. Another advantage of using ROCs is that they have been used by investigators in a number of other fields for both prediction and diagnosis,

Figure 3
Relative Operating Characteristic for the Violence Risk Appraisal Guide



Note. Area of shaded figure = .76.

so that comparison of overall accuracies is possible. For example, the area of .76 compares favorably to an area of .74 obtained for the short-term weather forecasts of severe storms, whereas the area for the VRAG is no match for the areas of .87 to .97 obtained for the use of radionuclide scanning and computed tomography for diagnosing brain lesions (Swets, 1988). The advantage of using the ROC rather than Cohen's *d* is that the ROC shows the performance of the test at a variety of cutoff points. Its additional advantage over other commonly used measures of accuracy is that its index of effect size is independent of the base rate. In the case of the VRAG, the ROC is quite symmetrical. However, it is possible to obtain ROCs that are lopsided, indicating that the test performs better in a situation that requires high sensitivity but less well in a situation that requires high specificity (or vice versa).

Considering that just 15 to 20 years ago experts were very pessimistic about the ability to accurately assess dangerousness, the large effect obtained in this study was remarkable and encouraged us to conduct further studies to see how well the VRAG generalized to other follow-up times, other measures of violent outcome, and other populations (Rice & Harris, 1995, in press-a). To see how well the instrument worked at shorter or longer follow-up periods, we used a sample of 868 men. The sample included the 618 men in the previous study as well as others who had been released since the previous study and a separate group of sex offenders. The average follow-up time for the 868 men was 10 years. We also artificially shortened the follow-up to 3.5 years by declaring anyone who failed after that to be a success. When we did this, we obtained areas of .75 and .74 for the accuracy of the VRAG, virtually identical to the areas obtained in the original construction.

We also examined the generalizability of the instrument by changing our definition of violent recidivism. For these analyses, we defined *serious violent recidivism* as being arrested for something more serious than one assault, armed robbery, or threatening with a weapon. This resulted in a lower base rate for violent recidivism (29% in the 10-year follow-up rather than 43%), but the area obtained for the accuracy of the VRAG was nearly the same (.73). Finally, we conducted a cross-validation of the VRAG on a completely new sample of 159 sex offenders (Rice & Harris, in press-a). For this sample of offenders, the base rate of violent recidivism in a 10-year follow-up was 58%. The VRAG's area was very close to that obtained in the construction sample, .77. With a small revision that replaces some variables of the VRAG with some that we have found to be especially useful for sex offenders (Quinsey, Rice, & Harris, 1995), the instrument has been found to yield an area of .82 for general recidivism (Bélanger & Earls, 1996). Data regarding the VRAG and the Sex Offender Risk Assessment Guide are currently being gathered at other institutions.

In our current research, we are testing whether dynamic variables (described in Webster, Harris, Rice, Cormier, & Quinsey, 1994) can improve on the predictions

that are based on the static variables that constitute the VRAG. We describe how clinicians might use the VRAG in combination with dynamic variables to make recommendations regarding placement and treatment (Rice & Harris, in press-b; Webster et al., 1994). We are also examining whether theoretically driven causal models can account for sexual and violent behavior.

In summary, our work and that of others on the prediction of violence has shown that long-term criminal violence can be predicted with a considerable degree of accuracy among men who have already been apprehended for a violent criminal offense. Our actuarial prediction instrument, the VRAG, has performed well across different follow-up times (with different definitions of violent outcome) and on two cross-validations.

The Nature of Psychopathy

The other area of research stimulated by our evaluation of the therapeutic community has to do with the nature of psychopathy. Since Cleckley's (1964) pioneering work, the concept of psychopathy has evolved (Hare, 1986, 1993, 1996; Mealey, 1995). Perhaps because most of the empirical work on psychopathy has been done with prisoners, the concept has come to include antisocial behaviors similar to those that define *antisocial personality* in the *DSM-IV* (American Psychiatric Association, 1994) in addition to interpersonal and affective characteristics. Currently, the most empirically validated method of measuring the hypothesized construct of psychopathy is the PCL-R, which comprises 20 items that pertain to interpersonal characteristics (such as glibness, superficial charm, and a grandiose sense of self-worth) and to criminality (such as criminal versatility and juvenile delinquency). Although scores on the PCL-R range from 0 to 40, which suggests at first glance that a person can be more or less psychopathic, the score could reflect instead the probability that an individual is a psychopath. That is, a high score (a commonly used criterion is 30) might mean that an individual is very likely to be a true psychopath, and a low score (e.g., under 10) means that an individual is extremely unlikely to be a true psychopath, with less certainty about scores in between. In other words, psychopathy might not be a continuous dimension but rather a discrete class or "taxon" that exists in nature (Meehl & Golden, 1982). To detect a taxon is (borrowing a phrase from Plato) to "carve nature at its joints" (as quoted in Gangestad & Snyder, 1985, p. 317; Meehl, 1992, p. 121). The logic behind the procedures for detecting a taxon (Golden, 1982; Meehl & Golden, 1982) rests on comparing the covariation between the two hypothesized classes on indicators of the construct and comparing that with the covariation within each group on those same indicators. For example, gender is clearly a taxon, with the two classes being male and female. Among preschoolers, we might use wearing pink, having long hair, and playing with dolls as indicators of the gender taxon. Then, in a mixed group of boys and girls, we should find that the three indicators (clothing color, hair length, and toy choice) are positively correlated.

However, if we separate the girls from the boys and look at the groups separately, we would find that the indicators are no longer (or much less) intercorrelated.

Meehl and others (e.g., Erlenmeyer-Kimling, Golden, & Cornblatt, 1989; Golden, 1982; Golden & Meehl, 1979; Meehl, 1990) have used taxometric techniques to establish considerable evidence that schizotypy is a taxon, although there have also been other studies that have not supported their findings (see Garb, 1996; Miller, 1996). There is general agreement, however, that strong evidence of a taxon exists when multiple tests are used, when the different methods agree on the estimates of the prevalence and their categorizations of individuals, and when variables thought to measure a continuous dimension and tested the same way fail to detect a taxon (Faraone & Tsuang, 1994; Gangestad & Snyder, 1985; Meehl, 1992, 1995, 1996b; Miller, 1996).

We (Harris, Rice, & Quinsey, 1994) used four different tests of a latent taxon to examine the hypothesis that psychopathy is a discrete class, an idea suggested by Meehl (1992). We obtained evidence for the existence of the taxon each time. Furthermore, the methods identified nearly the same best cutoff score to identify psychopaths, and the best indicators of the taxon were generally the same in the four tests. The indicators of the taxon came from the PCL-R (e.g., proneness to boredom, parasitic lifestyle, and impulsivity) and from variables having to do with childhood and adolescence that do not form part of the PCL-R, such as elementary school maladjustment, childhood aggression, and being suspended or expelled from school. To further strengthen the evidence for a taxon underlying psychopathy, we used the same techniques to look for a taxon by using a measure of criminal history that we hypothesized was continuous. We found no evidence for a taxon when we used this measure. Of course, until these intriguing results are replicated by other investigators, we must consider them promising rather than conclusory. A first step toward a replication has recently been taken by K. Rasmussen and S. Levander (personal communication, January 7, 1997), who found evidence for a bimodal distribution of PCL-R scores among patients in a secure psychiatric hospital in Norway.

Meehl (1992) stated that finding that a construct is a taxon rather than a continuous dimension increases the likelihood that its etiology is a major gene locus. There is suggestive evidence of an inherited component to psychopathy or the closely related concepts of antisocial personality disorder and conduct disorder (e.g., Mealey, 1995; Raine, 1993). Psychopathy, like antisocial personality disorder, is usually classified as a mental disorder (American Psychiatric Association, 1994). We have a different hypothesis. Wakefield (1992) proposed that a *disorder* be defined as a harmful dysfunction or as suffering experienced by an individual because of the failure of an internal mechanism of the individual to perform as designed by natural selection. However, those who have had firsthand experience with psychopaths can agree that they seem to suffer little or no personal distress in com-

parison with most mentally disordered persons. In fact, they commonly deny that they have any problems (Rice, Harris, & Quinsey, 1996), and the people who suffer are, for the most part, their victims. Thus, we and others (Harris, Rice, & Quinsey, 1994; Mealey, 1995; Quinsey, 1995) have hypothesized that psychopathy may not be a mental disorder at all, but instead an evolved "cheater" life strategy that contributed to fitness in ancestral environments. Indeed, many of the characteristics of psychopaths would make them skillful cheaters: glibness and superficial charm, pathological lying, sexual promiscuity, lack of remorse or guilt, shallow affect, impulsivity, irresponsibility, and parasitic lifestyle.

Models derived from game theory in which games of cooperation and defection are played in successive generations have shown that the emergence, frequency, and stability of cooperation and cheating in human interactions depend on a number of variables (Axelrod, 1984; Axelrod & Dion, 1988; Boyd & Richerson, 1992; Dugatkin, 1992; Dugatkin & Wilson, 1991). A cheating strategy has been found to thrive when group size increases, when the associations of individuals in a population are more random, when the probability of an error in memory or recognition of an individual increases, when the likelihood of future interactions with the same person is low, and when the likelihood and cost of punishment are low. We are currently exploring and testing the idea that psychopathy may be an evolved adaptation. Of course, even if subsequent research does support the idea that psychopathy is an inherited adaptation, it certainly does not mean that its expression cannot be altered. Many adaptations are "facultative," that is, they are genetically controlled responses to environmental conditions. There is every reason to believe that the behavior of psychopaths might be affected by minimizing the occurrence of situations in which a cheating strategy pays off. Perhaps the basic personality characteristics of psychopaths are relatively fixed, whereas violent behavior is dependent on growing up in a hostile environment. This interpretation might explain why some psychopaths commit serious violence, whereas others are apparently "successful" businesspersons who use their cheating skills to commit white-collar crimes and other shady and immoral but not violent acts.

Implications of the Research Findings for the Criminal Justice System

In this section, I outline how the results of violence research described in this article could be used to increase public safety. Of course, some of the implications raise controversial political and moral issues that warrant much more discussion than is possible here, and empirical data are certainly not the only relevant consideration in the formation of public policy. Nevertheless, I believe that many implications of the research are sufficiently clear and important that they merit consideration.

Release of Insanity Acquittees

Our research, as well as abundant evidence about the superiority of actuarial versus clinical prediction (Meehl,

1954, 1986), suggests that the use of an actuarial instrument would lead to better release decisions about insanity acquittees, provided it is applied to individuals similar to those used in the development of the actuarial model. Assessments of dangerousness made by clinicians continue to ignore the research on the prediction of violence (Borum, 1996). The VRAG did a good job of predicting violent criminal behavior among male insanity acquittees who had already committed a violent crime. Its performance was good over a number of follow-up times, across two definitions of violent outcome, and on two cross-validations. Without any change in the total proportion of persons detained, then, the use of the VRAG would lead to fewer new victims and fewer new violent crimes by men released after having been found not guilty by reason of insanity for a violent offense.

Additionally, our research results lead us to question the logic of legislation governing the release of insanity acquittees. The public perception that violence and mental disorder are causally linked is what has driven the creation of many of the laws regarding the release of insanity acquittees. In Canada, the criterion for release until very recently was whether the person had recovered sufficiently from the mental disorder so that he or she was no longer a danger to public safety. Currently, the Criminal Code of Canada (1985/1991) states that decision makers are to consider both mental disorder and dangerousness to the public. In other jurisdictions, insanity acquittees must show they are either no longer dangerous or no longer mentally ill. Our data, as well as those from a meta-analysis (Bonta, 1996), suggest both that violent recidivism among mentally disordered offenders is related to the same variables as among nonmentally disordered offenders and that schizophrenia in these populations is negatively related to violent recidivism. Hodgins (1993) examined the criminal and mental health records of a large birth cohort of Swedish men and found that most of the men who suffered from serious mental disorder and committed offenses committed them before the age of 18 and before the symptoms of the major mental disorder would have been present. Thus, there is currently no empirical support for the causal link that the public perceives between serious mental disorder (as that term is commonly understood) and violent recidivism nor for legislation that assumes such a link.

At the same time, our work and that of others (Hare & McPherson, 1984; Serin, 1991) has consistently shown that psychopathy is associated with a high likelihood of future violence. Although psychopathy is rarely considered a mental disorder for purposes of insanity acquittal, many insanity acquittees who have committed a violent offense (some of whom also have Axis I diagnoses) are psychopaths (Rice et al., 1990). The empirical data strongly suggest that violent recidivism would be reduced, and public safety thereby enhanced, by release decisions that are based on risk of future violence alone rather than recovery from mental disorder. Although there may be good constitutional or legal reasons why persons found not guilty by reason of insanity should not be

confined on the basis of dangerousness alone, legislation that is at odds with the empirical data, like many of the current laws governing insanity acquittees, certainly warrants reconsideration.

Finally, a multistate study in the United States found that length of confinement among insanity acquittees depended more on the seriousness of the offense committed than mental disorder (Silver, 1995; see also Harris, Rice, & Cormier, 1991a), which suggests that, in fact, decision makers do base their decisions primarily on the same factors that are used for nonmentally disordered offenders, regardless of what the legislation says.

Sentencing and Parole of Violent Offenders

In the United States, there has also been a trend toward sentences that are based on the severity of the offense committed, moderated, if at all, by past offense history only. Such terms as *just deserts*, *truth in sentencing*, *do the crime, do the time*, and *three strikes and you're out* all imply that incarceration time should be fixed and based on the crime committed, with little or no adjustment for factors other than the instant offense and offense history. Our data suggest that these policies would lead to far less than optimal (as far as preventing future violent crime without increasing the incarceration rate) decisions about who should be detained. Rather, our results suggest that future violence by convicted offenders would be minimized most economically by basing sentencing and parole decisions on more comprehensive information about the offender, including such things as score on the PCL-R, childhood history, and diagnostic information. Of course, prevention of further violence by convicted offenders is not the only issue relevant to sentencing options. Sentencing also serves to provide general deterrence, the communication of societal values, and the prevention of vigilante justice. However, in making policies regarding sentencing, policymakers should certainly consider that new violent crimes by convicted offenders could be reduced without higher overall rates of incarceration if sentencing decisions took into account the empirically derived likelihood of future violent offending.

Preventive Detention

The Criminal Code of Canada (1985/1991) permits certain serious offenders to be designated *dangerous offenders* and allows for them to receive lengthy or indefinite sentences at the time of conviction. In determining whether to designate an offender as a dangerous offender, the court considers the likelihood of the individual committing a serious violent act in the future. A study (Wormith & Ruhl, 1986) of dangerous sexual offenders (now called simply "dangerous offenders") in Canada showed that use of the dangerous sexual offender legislation was inconsistent and not primarily based on factors having to do with actual risk. Research on violence prediction shows that an actuarial instrument would lead to more accurate decisions about which offenders will commit another serious violent offense and, thus, for whom dan-

gerous offender status would be most efficacious in preventing further violence.

In addition to or instead of dangerous offender legislation, many jurisdictions either have (e.g., the state of Washington) or are considering (Canada) legislation that permits a decision at the end of a sentence to detain certain offenders (especially certain sex offenders) beyond the expiration of their original sentence if they are judged to be at high risk of committing another serious sexual offense when released. Such legislation is currently being challenged on the grounds that it is unconstitutional in the United States, and it may not become law in Canada for similar reasons. However, research suggests that there are also few empirical grounds for such legislation. All of the predictors of violence in the VRAG, for example, are archival ones that are based solely on what is or can be known about offenders at the time of their original sentencing. Although we and others have explored and continue to examine whether variables having to do with treatment or changes during incarceration alter risk of future violence, there are as yet few studies to support either the view that likelihood of future violence can be reduced during incarceration or hospitalization or that predictions of future violence made during incarceration are more accurate than those made at the outset (e.g., Quinsey, Coleman, Jones, & Altrows, in press).

Treatment for Psychopathic Offenders

Our research provides little information about what type of treatment might work for psychopathic offenders. Indeed, our research suggests that there may be little "wrong" with psychopaths for therapy to "fix." However, our research does suggest that certain treatments, such as the therapeutic community evaluated in our research, may actually increase the psychopath's future violence. This idea is supported by other research strongly suggesting that programs designed to bolster self-esteem can actually increase aggression (Baumeister et al., 1996). It is important to note here that I am not proposing that we abandon the idea of treatment for psychopaths, only that we abandon those methods that have been tried and have failed and that we concentrate our future efforts on more promising techniques that fit with current theories about psychopathy (see Hare, 1996; Lykken, 1995, for different, but complementary theories). Our theory that psychopathy may not be a disorder but rather an adaptation says nothing about our ability to effect change through intervention, although it could guide us in suggesting targets for intervention.

Furthermore, our theory that psychopathy is a cheater adaptation suggests that violence by psychopaths might be reduced through careful monitoring and supervision that would reduce the payoff for using a cheating strategy by increasing the likelihood of detection. Close monitoring of and sanctions for aggression and other antisocial behavior by caretakers early in life might shape the later behavior of persons with a genetic predisposition to psychopathy. The expenditure of considerable re-

sources on treatment and supervision of psychopaths on their first contact with the criminal justice system would seem warranted because psychopathic offenders remain at high risk for violent behavior for a very long time.

Evaluation of Intervention Programs

Our research demonstrated the importance of evaluating any interventions that are designed to reduce the likelihood of violent behavior and how wrong our beliefs about the value of intervention programs can be. Our results, as well as those of others (e.g., Fagan, 1990; McCord, 1978; Quinsey, Khanna, & Malcolm, 1996), show that some so-called therapeutic programs can actually increase the likelihood of recidivism for certain offenders. On the other hand, we have also shown through careful empirical evaluation that violence, at least within institutions, can be reduced through intervention (Rice, Harris, Varney, & Quinsey, 1989; Rice, Helzel, Varney, & Quinsey, 1985). As innovative programs for psychopaths and other violent offenders are developed and tested, it is extremely important that they be evaluated. As a matter of public policy, then, any interventions designed to reduce the likelihood of violence should be required to include an empirical evaluation of outcomes.

Conclusions

The field of violence prediction research has advanced to the point where actuarial predictions about serious criminal violence by men who have already committed one violent offense can be made with a considerable degree of accuracy. This group, although a small proportion of the population, is a group whose violence is the focus of much societal concern. Research on the nature of psychopathy is yielding new insights into a group of offenders who are highly prone to violence. There is every reason to believe that applying the results of violence research to make policy changes in the criminal justice system would make society safer.

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