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## Assault in Prison and Assault in Prison Psychiatric Treatment

**ABSTRACT:** Studies have described measures associated with assault in the community, but few have identified measures associated with assault in prison or prison psychiatric treatment. In this study, prison assault histories and assaults while in prison psychiatric treatment for 222 randomly selected male inmates were evaluated. Using record reviews, interviews, neuropsychological, Rorschach, and psychopathy measures, risk factors for assault in prison and in prison psychiatric treatment were identified. Youth Authority placement, inhalant use, antisocial lifestyle, neurological injury, neuropsychological impairment, and higher PCL-R Factor II ratings were associated with assault in prison. Absence of major mental disorder, neurological impairment, or psychotic thinking, but presence of psychopathy was associated with assault in prison psychiatric treatment. In identifying risk for violence, the importance of (1) the context in which violence occurs; (2) the need for clear admission criteria for prison psychiatric treatment; and (3) the need to develop risk assessments that are specific to prison environments are emphasized.

**KEYWORDS:** forensic science, forensic psychology, correctional psychology, assault in prison, violence in prison, psychopathy

In the past decade, there has been increasing interest in understanding and identifying risk factors for violence. Monahan (1) identified young age, unmarried or divorced marital status, non-Caucasian race, and low socioeconomic status as risk factors for community violence. More recently, Monahan, Steadman, Silver, Appelbaum, Robbins, and Mulvey, et al. (2) emphasized the importance of considering different contexts in the community in which violence occurs when identifying risk factors for violence. In evaluating adolescent and adult death row inmates, Lewis, Pincus, Bard, Richardson, Pritchep, and Feldman, et al. (3) identified child abuse, neglect, maltreatment, and “biological/psychiatric vulnerability” as risk factors for violence in the community. In their study, Chiles, Von Cleve, Jemelka, and Trupin (4) reported that alcohol and/or drug abuse were significant factors in community violence, indicating that 92% of inmates in their study who had histories of violent behaviors also reported histories of alcohol and/or drug abuse. Raine (5), Edwards, Morgan, and Faulkner (6) and Diaz (7) all reported that brain abnormalities were associated with violent behavior.

Evaluating recidivist violence among former prison inmates, Rice (8) reported the following risk factors for violent recidivism: higher rating on the Psychopathy Checklist-Revised (PCL-R); elementary school maladjustment; age at index offense; diagnosis of personality disorder; separation from parent when the participant was under 16; failure on prior conditional release; criminal history for property offenses; marital status; diagnosis of schizophrenia; victim injury in index offense; history of alcohol abuse; and male victim in index offense. Using Rorschach measures, Welsch (9) identified high Lambda and limited Human Rorschach responses as associated with violence. Young, Justice, and Erdberg (10) identified a PCL-R total score of  $\geq 30$ , psychosis, drug other than alcohol or marijuana used most, non-Caucasian race, overall neuropsychological impairment, impaired executive functioning, and Rorschach

Coping Deficit Index, Personal Responses, and Raw Sum Special Scores as risk factors for violence in the community.

Understanding violence in the community is of interest to all members of society. Understanding continued violence once the individual is incarcerated, however, is of particular interest to those who provide services within a prison setting. Over the past decade, various investigators have attempted to identify risk factors for violence in community psychiatric treatment, in prison psychiatric treatment, and in prison. Although his recommendations may not be advisable, Anson and Hancock (11) suggested that not all individuals have the same need for personal space, reporting that inmates who had histories of past violence required more physical space than nonviolent inmates. These authors suggested that a history of violence, rather than federal court rulings, should dictate the amount of space provided to inmates. Although evaluating individuals psychiatrically hospitalized in the community, rather than in prison, Litaker (12) identified prior history of violence, sex, race, injury history, and length of stay in the hospital as factors associated with assault while hospitalized. Hill, Rogers, and Bickford (13) evaluated age, type of charges, history of alcohol and/or drug abuse, and ratings on the Psychopathy Checklist–Screening Version (PCL:SV) as risk factors to violence within a forensic psychiatric hospital. These authors reported that a high rating on the PCL:SV was the strongest associated with aggression and treatment non-compliance within that setting.

Citing evidence from neuroimaging, neuropsychological testing, neurological “soft signs,” electroencephalographic, event-related potential, and skin conductance studies, Trestman (14) identified Borderline and/or Antisocial Personality Disorders as risk factors for violence in all environments. This author, however, suggested that, although higher rates of violence were reported for individuals diagnosed with these personality disorders, underlying neurological differences, rather than the diagnosis itself, accounted for the aggression and violence.

Walters (15) evaluated inmate-initiated assault incidents over a nine-year period and found young age, racial ratios, population density, and staff inexperience as measures associated with assault in prison. From a different perspective, Offer (16) evaluated the role

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of attachment style and self-esteem in prison violence. This author reported that inmates who experienced “more secure attachments in romantic relationships,” and inmates who had “positive relationships to their mothers” demonstrated less violence in prison. And finally, Wang (17) identified anger, antisocial personality style, and impulsivity as significant antecedents to physical aggression among mentally ill male offenders who were receiving psychiatric treatment while in prison.

The purpose of this study was to evaluate risk factors for violence in prison and in prison psychiatric treatment. We wanted to know what characteristics identified men who assaulted in prison and in prison psychiatric treatment. It was thought that the same measures associated with assault in prison would also be associated with assault in prison psychiatric treatment. Using data from a research project that evaluated demographic, drug use, community and prison violence, diagnostic, neuropsychological, and Rorschach measures in a randomly selected group of psychiatrically hospitalized male offenders, measures were hypothesized as associated with assault in prison or as predicting assault in prison psychiatric treatment.

Demographically, it was hypothesized that inmates who assaulted in prison and/or in prison psychiatric treatment would be young, non-Caucasian, drug abusers, and would have histories of high violence in the community. Diagnostically, it was hypothesized that inmates who had Axis II Borderline Personality Disorder, positive psychopathy ratings on the PCL-R, and higher PCL-R Factor II ratings would have histories of assault in prison and would assault in prison psychiatric treatment. Overall neuropsychological impairment and Rorschach measures suggesting poor attachment (Texture, Human) poor self-esteem (Egocentricity Index, Reflection Responses, Morbid Responses), anger (Space responses and S-percent), and unmodulated affect (Pure C and CF responses) were hypothesized as measures that would be associated with assault in prison and/or in prison psychiatric treatment.

Based on existing research and on the authors' experience with forensic psychiatric inmates, the following measures were also analyzed: lower education; lowest socioeconomic group; poor school experience; poor reading ability; youth authority placement; drug other than alcohol or marijuana; absence of a psychotic, mood, or “organic” major mental disorder; incidence of neurological injury; impaired attention (Seashore Rhythm); impaired overall brain functioning (Tactual Performance Test); impaired executive functioning (Wisconsin Card Sorting and Category Test); and Rorschach responses suggesting interpersonal distance (Personal), immature emotional development (Coping Deficit Index), perceptual inaccuracy (X+ % and X- %), and illogical thinking (Sum Special Scores and Sum Level 2 Special Scores).

## Methods

### Participants

Participants were 222 males (inmates) who were receiving psychiatric treatment in a mental health facility located within a California state prison. Data from two consecutive studies were analyzed. In this treatment program, any inmate within the state of California prison system who is thought to be experiencing acute psychiatric problems or who reports suicidal intent can be referred to this program for psychiatric stabilization, evaluation, and treatment. Treatment is provided by an interdisciplinary treatment team (IDT) (physician, psychologist, social worker, rehabilitation therapist, nursing) and includes medication, behavioral milieu, individual, and group therapy. Each month a list of the inmates who

are admitted for treatment is provided to the researchers by the program's Health Information Services (HIS). From this list, inmates were randomly selected for participation. Participation in the study was voluntary. This research project was approved and is reviewed annually by the California Statewide Committee for the Protection of Human Subjects. Prior to initiating procedures, all inmates provided signed informed consent as specified by this committee. All subjects in the protocol completed at least 85% of all procedures.

There was an 18% refusal rate for these randomly selected inmates. In the opinion of the researcher who sought consent, reasons for refusal to participate included uncontrolled psychosis (33%), depression and/or suicidal vulnerability (15%), mania (18%), and “faking” or “malingering” psychiatric symptoms (33%). To try and address the concern that consistent characteristics of inmates who refused to participate resulted in skewed or invalid results, measures that could be obtained from HIS data were evaluated. Significant differences between participants and nonparticipants were not found for age ( $t(220) = 1.14, p = 0.25$ ), education ( $t(220) = -0.27, p = 0.98$ ), or race ( $\chi^2(1, N = 222) = 1.86, p = 0.18$ ). Significant differences were, however, found for Axis I and Axis II diagnoses. Nonparticipants were more likely *not* to have an Axis I diagnosis ( $\chi^2(1, N = 211) = 8.63, p < 0.01$ ) but to have an Axis II diagnosis of Narcissistic Personality Disorder ( $\chi^2(1, N = 210) = 6.43, p < 0.01$ ).

### Demographics

Ages ranged from 18 to 65 years, with a mean age of 33 years ( $SD = 8.16$ ). Education ranged from third grade to post-graduate (20 years). Most individuals in the sample, however, had a tenth grade education. The sample was comprised of Caucasian Not of Hispanic Origin (40%), African American (33%), Latino (21%), and Other (6%). Using the Myers & Bean (18) two-factor (Education  $\times$  Occupation) index of social position, the predominance of subjects were from the lowest socio-economic groups (IV = 28%; V = 66%).

### Psychiatric Diagnosis

Thirty percent (30%) of inmates were diagnosed with a psychotic disorder, 20% with a mood disorder, 12% with an “organic” disorder, and 14% with disorders characterized by both psychotic and mood features. Although this program is an acute psychiatric treatment program whose mission is to treat inmates who experience acute signs and symptoms of a major mental disorder, 24% of inmates were discharged without a diagnosis of major mental disorder. These individuals were diagnosed as Adjustment Disorder, No Diagnosis on Axis I, Malingering, or Axis II as the primary diagnosis.

Using only the primary diagnosis on Axis II, 6% were diagnosed with personality disorders in DSM-IV Cluster A, 51% in Cluster B, and 15% in Cluster C. For 28% of the sample, sufficient information to establish an Axis II diagnosis was not available, and diagnosis was deferred. As would be expected with a prison population, the majority of Axis II diagnoses were in Cluster B. Within that cluster, 15% were diagnosed with Borderline Personality Disorder, 13% with Narcissistic Personality Disorder, and 23% with primary Antisocial Personality Disorder (ASPD). Including any diagnosis within Axis II, 74% met criteria for ASPD.

Psychopathy was measured using the Psychopathy Checklist-Revised (PCL-R). Using  $\geq 30$  as a cutoff for psychopathy, 25% of the entire sample were classified as psychopathic, 27% of those

who assaulted in prison were psychopathic, and—remarkably—45% of those who assaulted in prison psychiatric treatment were psychopathic.

### Drug Use Histories

Drug abuse was pervasive, with 90% reporting drug abuse histories that met criteria for abuse and/or dependence and 78% reporting histories of polysubstance abuse. Although alcohol and/or marijuana were most frequently used, first, most, and preferred, drugs other than alcohol/marijuana were used first by 20%, most by 51%, and preferred by 56%. Also of importance, 14% reported inhalants as the drug first used.

### Violence Histories

Appendix A describes the violence rating scale used in this study. This sample of inmates predominantly had histories of high violence. Twenty-six percent were convicted of murder and another 49% were convicted of an offense that resulted in serious physical harm to another individual. Using a criterion of two or more offenses resulting in physical harm or death, 59% were classified as having offenses of “high violence.” Twenty-six percent of the inmates in this sample were serving a life sentence. Additionally, inmates in this sample typically started their criminal histories at a young age, with 49% being placed with the California Youth Authority.

In the California Department of Corrections, inmates who “break the rules” while in prison are issued a Disciplinary Action, referred to as a “115 offense.” These offenses can be either Administrative or Serious. Administrative offenses are less serious and do not involve assault to another individual. Serious offenses involve assault, or potential harm, to another person or threat to the safety and security of the institution. At the time of their participation in this study, inmates had been in prison an average of 6.84 years (range = one to 21 years) and had received an average of ten 115 offenses (Table 1).

### Materials

#### Semi-Structured Interview

Demographic information was obtained through an interview with the inmate and a review of his criminal, medical, and psychiatric records. The semi-structured interview included description of the inmate’s criminal, psychiatric, drug use, developmental, relationship, medical, social, school, and work histories.

TABLE 1—Description of assault offenses.

Type of Offense	<i>n</i>	<i>M</i>	<i>SD</i>	Minimum	Maximum	% with 0 Offenses
<i>Total Offenses</i>						
Administrative	222	6.55	13.51	0	120	22
Serious	222	3.46	6.13	0	50	40
Total	222	9.73	17.57	0	150	14
<i>Average Number of Offenses*</i>						
Administrative	192	0.64	1.28	0	10	20
Serious	194	0.40	0.86	0	8	38
Total	195	0.99	2.07	0	21	8

\* Number of offenses in each six-months of prison.

### Neuropsychological Functioning

Neuropsychological evaluations included measures selected to evaluate attention (Seashore Rhythm, Trail Making A and B), incidental memory (Tactual Performance Test Memory and Localization), Language (WAIS-R Vocabulary, WRAT-R Reading Recognition), Psychomotor (WAIS-R Block Design, TPT Total Time), and problem solving (Category Test, Wisconsin Card Sorting Test). Intellectual functioning was estimated using the WAIS-R Vocabulary and Block Design subtests and the Non-Verbal Intelligence Test (TONI III). The higher score on either of these measures was used for analysis.

### Rorschach Evaluations

The Rorschach test was scored using the Comprehensive System developed by Exner (19). Rorschach measures suggesting poor attachment (Texture, Human), poor self-esteem (Egocentricity Index, Reflection, Morbid Responses), anger (Space and S-percent), unmodulated affect (Pure C and CF), Indexes (Schizophrenia, Depression, Coping Deficit, Suicide), stress tolerance (D Score, Adjusted D Score), reality testing (X+%, Xu%, X-%), thinking (Weighted Sum Special Scores, Sum Level 2 Special Scores), affect (Y, C', V) and interpersonal distance (Personal) were analyzed.

### Psychiatric Diagnosis

Psychiatric diagnosis was established using demographic and personal information, clinical information, and psychological and neuropsychological testing. When more than one diagnosis was given for either Axis I or Axis II, the primary diagnosis was coded. As indicated, psychopathy was established using the PCL-R.

### Procedures

Inmates were randomly selected from monthly admissions lists. Evaluation procedures were initiated within two weeks of the time that the Interdisciplinary Treatment Team (ITT) determined that the inmate had reached reasonable psychiatric stability and was able to cooperate with procedures. As indicated, informed consent was provided by all inmates.

For all participants, assaults in prison psychiatric treatment occurred after their participation in this project was completed, allowing a predictive position for this part of the study. The exposure interval for tracking assault in prison psychiatric treatment was from the time participation in this study was completed to the time of discharge from prison psychiatric treatment. The mean interval was 115 days. The minimum interval was one day and the maximum interval was 115 days. Information regarding assaults in prison was obtained from the inmate’s prison central file, allowing for associations for this part of the study. For both assault in prison and assault in prison psychiatric treatment, the investigators in this project were not aware of the assault history prior to completing all research procedures. Table 2 provides a description of the length of time inmates had been in prison when they participated in this project, as well as the length of time that inmates were in prison psychiatric treatment. Significant differences between the groups for time in prison ( $t(174) = -0.58, p = 0.56$ ) and for time in treatment ( $t(140) = -0.65, p = 0.52$ ) were not found.

A comprehensive review of medical records was completed, the inmate was interviewed, all previously listed procedures were completed, and the inmates prison central file was reviewed. Interrater

TABLE 2—Time in prison and in prison psychiatric treatment.

Description	N	M	SD	Minimum	Maximum
<i>Time in Prison</i>					
Inmates who Assault	153	7.44 yrs	6.16 yrs	1 year	36 yrs
Inmates who do not Assault	23	6.65 yrs	5.56 yrs	1 year	28 yrs
<i>Time in Prison Psychiatric Treatment</i>					
Inmates who Assault	20	101 days	87 days	2 days	327 days
Inmates who do not Assault	122	116 days	105 days	1 day	720 days

reliability for Axis I diagnosis was established by comparing Structured Clinical Interview for DSM-III-R Patient Edition (SCID-P), Spitzer, Williams, Gibbon, and First (20), with psychiatric diagnosis for 10% of the sample. The SCID-P was administered by an investigator who was blind to diagnosis based on all other information. There was 79% agreement between SCID-P diagnosis and psychiatric diagnosis used in this study.

Two raters coded 10% of the Rorschach protocols to establish intercoder agreement. Agreement findings are based on Cohen's (21) kappa, a chance-corrected agreement statistic. Landis and Koch (22) suggested the following guidelines for describing levels of agreement as characterized by kappa: 1 to 20, slight agreement; 21 to 40, fair agreement; 40 to 60, moderate agreement; 61 to 80, substantial agreement; and 81 to 100, nearly perfect agreement. Inter-coder agreement for this sample ranged from 0.75 to 1.00.

Investigators collecting data for this project were both certified (Hare PCL-R Training Program). Using the criteria of agreement within two total points, there was 88% intercoder agreement for 10% of PCL-R interviews. Using the criteria of agreement within three total points, there was 100% interrater agreement.

## Results

In this study, it was hypothesized that demographic, diagnostic, neuropsychological, and Rorschach measures would significantly identify inmates who assaulted in prison or who assaulted in prison psychiatric treatment. Assault was defined as a "serious rule violation" involving use of force or violence against another person as described in Appendix B. All assaults were against either correctional or mental health staff. The base rate for assault in prison was 68%. The base rate for assault in prison psychiatric treatment was 11.7%. Inmates were dichotomized into two groups: those who assaulted and those who did not assault. Inmates in this study had been in prison for an average of seven years (mean = 6.84; SD = 4.48). The average length of stay in prison psychiatric treatment was 101 days (see Table 2). Significant differences in the number of years in prison ( $t(198) = 0.91, p = 0.36$ ) and the length of stay in treatment ( $t(141) = -0.57, p = 0.56$ ) between inmates who assaulted in prison or in prison psychiatric treatment were not found.

Both a priori hypotheses, as well as post-hoc significance tests, were suggested. Although Borderline Personality Disorder and poor attachment (Rorschach Human Response) identified men who assaulted both in prison and in prison psychiatric treatment, all other measures characterized inmates in only one of these groups.

## Hypotheses

### Demographic Hypotheses

It was hypothesized that men who assaulted in prison or in treatment, when compared to men who did not assault in these environ-

ments, would be younger, non-Caucasian, have histories of drug abuse, and have histories of high violence. For the group of men who assaulted in prison, none of these hypotheses was supported. For the group of men who assaulted in treatment, only younger age was supported ( $t(220) = -2.91, p = 0.01$ ). The chance of experimental error is 19%. Bonferroni-corrected alpha is 0.01.

### Diagnostic Hypotheses

It was hypothesized that men who assaulted in prison or in treatment would be diagnosed with Axis II Borderline Personality Disorder, would be positive for psychopathy (PCL-R  $\geq 30$ ), and would have higher PCL-R Factor II ratings. For both groups, diagnosis of Axis II Borderline Personality Disorder significantly identified men who assaulted (Assault in Prison  $\chi^2(1, N = 213) = 4.36, p = 0.04$ ; Assault in Treatment ( $\chi^2(1, N = 216) = 4.47, p = 0.03$ ). Men who assaulted in prison had significantly higher PCL-R Factor II ratings ( $t(193) = 2.69, p = 0.01$ ), but men who assaulted in treatment were significantly more likely to be positive for psychopathy (PCL-R  $\geq 30$ ) ( $\chi^2(1, N = 204) = 3.88, p = 0.04$ ). The probability that this set of comparisons is without Type I error is 14%. Bonferroni-corrected alpha is 0.01.

### Neuropsychological Hypotheses

It was hypothesized that men who assaulted in prison and in treatment would have overall neuropsychological impairment, as measured by an impairment index. This hypothesis was supported for men who assaulted in prison (Halstead Impairment Index  $t(200) = -1.99, p = 0.05$ ). Interestingly, and opposite to the hypothesized direction, men who assaulted in treatment had more intact overall neuropsychological functioning (Impairment Index  $t(202) = 2.38, p = 0.02$ ).

### Rorschach Hypotheses

It was hypothesized that men who assaulted in prison and in treatment would provide more Rorschach responses indicating poor attachment (Texture and Human Responses), poor self-esteem (Egocentricity Index, Reflection Responses, Morbid Responses), underlying anger (Space Responses and S-%), and unmodulated affect (C and CF). For men who assaulted in prison, indication of poor attachment (Human Responses  $t(220) = -2.11, p = 0.03$ ) was indicated. For men who assaulted in treatment, poor attachment (Human Responses  $t(220) = -1.95, p = 0.05$ ), immature self-esteem (Egocentricity Index  $t(220) = -1.94, p = 0.05$ ), but less psychotic thinking (Level 2 Special Scores  $t(220) = -2.64, p = 0.01$ ) identified inmates who assaulted. The probability that this set of comparison is without Type I error is 37%. Bonferroni-corrected alpha is 0.01.

**Post-Hoc Significance Tests**

*Demographic Post-Hoc Significance Tests*

It was thought that men who assaulted in prison or in prison psychiatric treatment would have less education, lower SES, and poor school experience, Youth Authority placement, and drugs other than alcohol/marijuana used first, most, and preferred. For men who assaulted in prison, Youth Authority Placement ( $\chi^2(1, N = 176) = 9.56, p = 0.01$ ) and inhalant use ( $\chi^2(1, N = 191) = 5.96, p = 0.01$ ) was associated with assault. For men who assaulted in treatment, none of these measures were associated with assault. The probability that this set of comparisons is without Type I error is 23%. Bonferroni-corrected alpha is 0.01.

*Diagnostic Post-Hoc Significance Tests*

Based on the researcher’s experience in prison and prison psychiatric treatment, it was thought that men who assaulted in prison or in treatment would not have a major mental disorder. Although not statistically significant, there was a high incidence of major mental disorder for men who assaulted in prison (45% psychotic diagnosis, 21% mood diagnosis, 11% organic diagnosis, 23% no diagnosis). Men who assaulted in treatment, however, were significantly less likely to have a major mental disorder (no major mental disorder  $\chi^2(1, N = 216) = 3.29, p < 0.05$ ).

*Neuropsychological Post-Hoc Significance Tests*

It was hypothesized that men who assaulted in prison or in treatment would report neurological injury (loss of consciousness for >15 min) would have less reading accomplishment, impaired attention, and impaired executive functioning. As hypothesized, men who assaulted in prison reported greater incidence of neurological injury ( $\chi^2(1, N = 181) = 7.95, p = 0.01$ ) and demonstrated greater overall neuropsychological impairment (Impairment Index  $t(200) = -1.99, p = 0.05$ ; TPT-Memory  $t(185) = -2.16,$

$p = 0.03$ ). In the opposite direction, men who assaulted in treatment reported fewer incidences of neurological injury ( $\chi^2(1, N = 181) = 5.47, p = 0.01$ ), better overall neuropsychological functioning (Impairment Index  $t(202) = 2.38, p = .02$ ), and had better executive functioning (Category Test  $t(214) = 1.82, p = .05$ ). The probability that this set of comparisons is without Type I error is 19%. Bonferroni-corrected alpha is 0.01.

*Rorschach Post-Hoc Significance Tests*

It was thought that men who assaulted in prison or in treatment would provide Rorschach responses indicating interpersonal distance (Personal), immature emotional development (Coping Deficit), more accurate reality testing (higher X+% and lower X-%), and more logical thinking (fewer Special Scores and absence of Level 2 Special Scores). None of these hypotheses significantly discriminated men who assaulted in prison from men who did not assault in prison. Poor attachment (Human Responses), however, identified both inmates who assaulted in prison ( $t(220) = -2.11, p = 0.03$ ) and who assaulted in prison psychiatric treatment ( $t(220) = -1.95, p = 0.05$ ). Consistent with psychiatric diagnoses, absence of bizarre thinking (Level 2 Special Scores  $t(220) = -2.64, p = .01$ ) significantly identified men who assaulted in treatment. The probability that this set of comparisons is without Type I error is 30%. Bonferroni-corrected alpha is 0.01.

Tables 3 and 4 provide further description of measures that significantly identify inmates who assault in prison and in prison psychiatric treatment.

**Logistic Regression Models**

To evaluate the relative contribution of each of the measures that were independently significant, stepwise logistic regression was conducted by entering relevant sets of variables (personal, diagnostic, neuropsychological, Rorschach) into the equation. For each set, measures that were independently significant were entered into the equation.

TABLE 3—Measures significantly associated with assault in prison.<sup>†</sup>

Characteristic	Assault			Without Assault			Test Statistic
	n	M/%	SD	n	M/%	SD	
Axis II Borderline Personality Disorder	29	18%		4	7%		$\chi^2(1, N = 213) = 4.36, p = 0.04$ $t(193) = 2.69, p = 0.01$
PCL-R Factor II	134	12.17	4.00	61	10.61	3.61	
Neurological Injury	96	71%		22	48%		$\chi^2(1, N = 181) = 7.95, p = 0.01^{**}$
Inhalant Use	24	17%		2	47%		$\chi^2(1, N = 191) = 5.96, p = 0.01^{**}$
Youth Authority Placement	72	56%		14	30%		$\chi^2(1, N = 176) = 9.56, p = 0.01^{**}$
Halstead Impairment Index	151	32.44	14.39	51	36.65	12.61	$t(200) = -1.99, p = 0.05^{**}$
Tactual Performance Test Memory	142	38.76	11.35	45	43.07	12.61	$t(185) = -2.16, p = 0.03^*$
Rorschach Human Responses	134	1.87	1.71	62	2.45	2.03	$t(194) = -2.11, p = 0.03^*$

\* =  $p < .05$ ; \*\* =  $p < 0.01$ .

<sup>†</sup> Tables describing all measures evaluated are available upon request from the authors.

TABLE 4—Measures significantly predicting assault in prison psychiatric treatment.

Characteristic	Assault			Without Assault			Test Statistic
	<i>n</i>	<i>M</i> /%	<i>SD</i>	<i>n</i>	<i>M</i> /%	<i>SD</i>	
Age	26	29.81	5.91	196	33.60	8.32	$t(220) = 2.91, p = 0.01^{**}$
SES	26	4.77	0.43	194	4.58	0.62	$t(218) = 1.96, p = 0.05^*$
Neurological Injury	11	44%		107	69%		$\chi^2(1, N = 181) = 5.47, p = 0.01^{**}$
No Major Mental Disorder	10	39%		41	22%		$\chi^2(1, N = 216) = 3.29, p = 0.05^*$
Axis II Borderline Personality Disorder	8	32%		33	18%		$\chi^2(1, N = 216) = 4.47, p = 0.03^*$
Positive for Psychopathy	10	40%		39	21%		$\chi^2(1, N = 204) = 3.88, p = 0.04^*$
Halstead Impairment Index	23	39.67	12.34	181	32.78	14.08	$t(202) = 2.38, p = 0.02^*$
Category Test	26	40.42	12.66	185	36.31	11.97	$t(209) = -1.82, p = .05^*$
Rorschach Egocentricity Index	26	0.31	0.18	196	0.37	0.21	$t(220) = -1.94, p = 0.05^*$
Human Responses	26	1.58	1.69	196	2.16	2.31	$t(220) = -1.95, p = 0.05^*$
Level 2 Special Scores	26	0.25	0.53	196	0.48	0.99	$t(220) = -2.64, p = 0.01^{**}$

\* =  $p < 0.05$ ; \*\* =  $p < 0.01$ .

TABLE 5—Stepwise logistic regression models—assault in prison.

Variable	Likelihood Ratio		<i>P</i>	$\beta$	SE	Odds Ratio <sup>†</sup>
	Chi Square					
<i>Step 1—Personal</i>	6.56		0.09			
Neurological Injury	2.37		0.12	0.43	0.45	1.54
Inhalant Use	1.66		0.20	0.50	0.71	1.64
Youth Authority	3.19		0.07	0.91	0.51	2.50
<i>Step 2—Diagnostic</i>	8.58		0.03*			
Borderline Disorder	4.22		0.01	1.39	0.67	4.0**
PCL-R Factor II	1.89		0.17	0.06	0.0	1.02
<i>Step 3—Neuropsychology</i>	3.99		0.14			
Impairment Index T < 40	0.80		0.37	-0.02	0.02	1.02
Tactual Performance—Memory	1.70		0.19	-0.02	0.02	1.02
<i>Step 4—Rorschach</i>	0.07		0.79			
Human Responses	0.01		0.90	-0.07	0.13	1.03

\*\*  $p = 0.01$ ; \*  $p = 0.05$ .

† Reciprocal of odds ratio is used when value < 1.0.

### Assault in Prison

For assault in prison, stepwise logistic regression revealed that only diagnostic measures ( $p = 0.03$ ) were significantly associated with assault. It was Borderline Personality Disorder ( $p = 0.01$ ; odds ratio = 4.0) that significantly accounted for the effect (Table 5).

### Assault in Prison Psychiatric Treatment

For assault in prison psychiatric treatment, stepwise logistic regression revealed that intact neuropsychological functioning

( $p = 0.01$ ) and personal measures ( $p = 0.03$ ) significantly associated with assault. For neuropsychological functioning, more intact overall neuropsychological functioning ( $p = 0.02$ ) and more intact executive functioning ( $p = 0.05$ ) both significantly accounted for the effect (Table 6).

### Relative Operating Characteristics

In order to estimate the overall accuracy of measures that independently identified men who assaulted in prison psychiatric treatment, relative operating characteristics (ROC), which provide information about classification accuracy, were calculated using

TABLE 6—Stepwise logistic regression associated with assault in prison psychiatric treatment.

Variable	Likelihood Ratio Chi-Square	<i>P</i>	$\beta$	SE	Odds Ratio <sup>†</sup>
<i>Step 1—Personal</i>	2.53	0.03*			
Age	1.85	0.17	0.04*	0.04	1.04
SES	0.01	0.96	0.45	0.43	1.04
Neurological Injury	0.84	0.36	0.39	0.50	1.47
<i>Step 2—Diagnostic</i>	3.02	0.22			
Axis I No Diagnosis	0.07	0.79	0.1	0.58	1.14
Positive for Psychopathy	3.11	0.07	0.99*	0.57	2.70
<i>Step 3—Neuropsychology</i>	9.43	0.01**			
Impairment Index T > 40	3.40	0.02	0.08	0.03	1.08*
Category Test	1.06	0.05	0.02	0.02	1.02*
<i>Step 4—Rorschach</i>	5.26	0.15			
Egocentricity	0.83	0.36	-2.1	1.49	8.33
Human Response	0.37	0.54	-0.88	0.18	1.12
Level 2 Special Scores	1.69	1.9	-0.12	0.14	1.37

\*  $p = 0.05$ ; \*\*  $p = 0.01$ .

† Reciprocal of odds ratio is used when value &lt; 1.0.

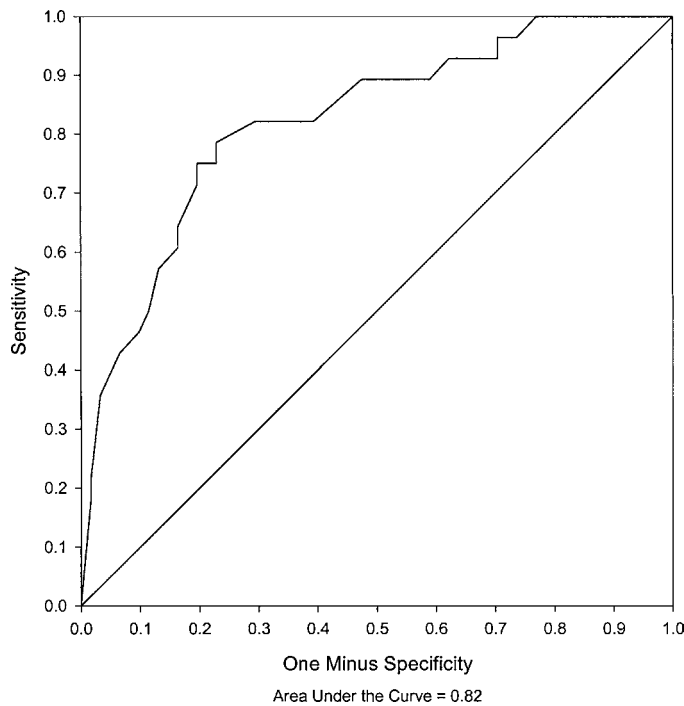


FIG. 1—Relative operating curve associated with assault in prison.

measures that were independently significantly associated with assault in prison and for assault in prison psychiatric treatment. Figure 1 demonstrates this curve for assault in prison, and Fig. 2 demonstrates this curve for assault in prison psychiatric treatment. ROC curves of 0.82 (standard error = 0.80) for assault in prison ( $\chi^2(7, N = 151) = 27.16, p = 0.001$ ) and 0.91 (standard error = 0.75) for assault in prison psychiatric treatment ( $\chi^2(10, N = 181) = 18.33, p = 0.01$ ) suggest that, even accounting for low base rate for assault in prison psychiatric treatment, the classification accuracy of measures identified in this study have acceptable sensitivity (accurate identification of those who would harm themselves—true positives) and specificity (accurate identification of those who would not harm themselves—true negatives).

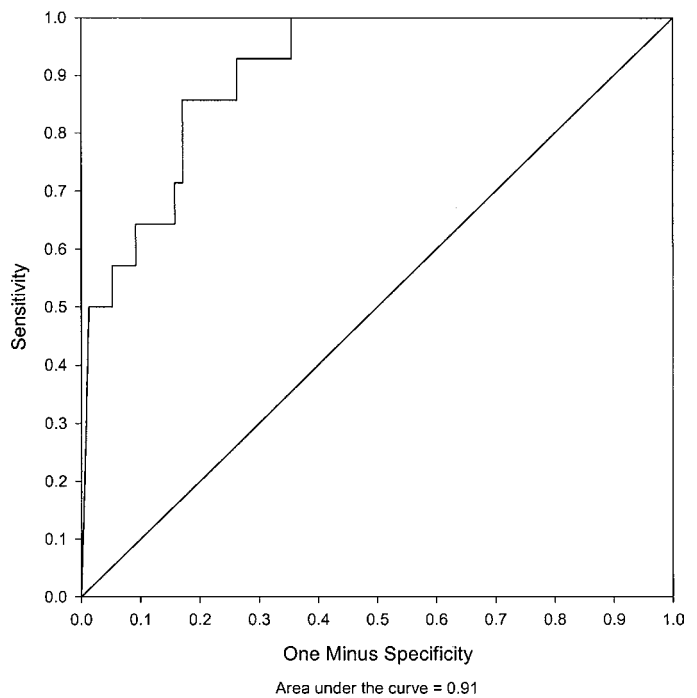


FIG. 2—Relative operating curve predictive of assault in prison psychiatric treatment.

## Discussion

The purpose of this study was to identify measures that discriminated incarcerated male offenders who assaulted in prison and in prison psychiatric treatment from those who did not assault in these environments. It was thought that these characteristics would generally be the same in both environments. Young age, non-Caucasian race, drug abuse, community violence, borderline personality disorder, psychopathy, and Rorschach measures suggesting poor attachment (Texture, Human), immaturity and poor self-esteem (Egocentricity Index, Reflection Responses, Morbid Responses), anger (Space Responses, S<sup>-</sup> Percent), and unmodulated affect (C and CF Responses) were hypothesized as risk factors for violence in both prison and prison psychiatric treatment.

Although participants in this study were randomly selected and although the number of participants is reasonably substantial (222), there are also several limitations to conclusions that can be established from this data. First, 18% of inmates randomly selected for participation refused to provide consent. Although these inmates did not differ significantly from those who did not refuse by age, education, race, or SES, there were diagnostic differences. Inmates who refused to participate were significantly less likely to be psychotic, more likely not to have a major mental disorder, and more likely to have an Axis II Narcissistic Personality Disorder. If not limited by Human Participants Committee restrictions, further evaluation of the characteristics of inmates who did not participate might be helpful.

Although measures that identify inmates who assault in prison psychiatric treatment are considered to be predictive, a second limitation to this study is that test findings associated with assault in prison are correlational and may be only descriptive. Future research might focus on evaluating inmates at the time of their incarceration and then following their prison histories to identify those who assaulted in prison, with the goal of establishing characteristics associated with these measures.

A third limitation of this study is that all of the participants—whether they did or did not have a major mental disorder—had found their way into prison psychiatric treatment. Because all of these inmates came from the general prison population and returned back to the general prison population upon discharge, however, it is our belief that this sample is representative of the general prison population. A separate study that provides the same information about inmates who have not received psychiatric treatment while in prison also is a reasonable next step for investigation. A fourth limitation of this study is the low base rate for assault (12%) in prison psychiatric treatment. Although ROC analyses are promising, cross-validation of the data is suggested.

With these limitations considered, there are some interesting conclusions from this study. An unexpected result in this study is that measures associated with assault in prison are quite different from measures that predict assault in prison psychiatric treatment. As a matter of fact, the only measures associated with or predictive of assault in both of these environments are Borderline Personality Disorder and poor attachment (Rorschach Human Responses). Although psychopathy is associated with or predictive of assault in both environments, different aspects of psychopathy are implicated depending on the environment. In prison, higher PCL-R Factor II (Antisocial Lifestyle) is associated with assault. In prison psychiatric treatment, being positive for psychopathy (PCL-R  $\geq$  30) is predictive of assault. All other measures differ depending on whether the environment is prison or prison psychiatric treatment. For example, history of head injury, inhalant use, and impaired performance on neuropsychological measures characterize men who assault in prison. More intact brain functioning, better ability to think, reason, and problem solve, absence of psychotic thinking, and presence of psychopathy characterize men who assault in prison psychiatric treatment.

Results from this study provide information for both prison and prison psychiatric treatment programs. Clearly, the same interventions to reduce staff assault in prison are not the same as those that would be useful in prison psychiatric treatment. Revising or developing programs that better accommodate impaired brain functioning may reduce assaults in prison. Environmental contingencies that are consistent, clear, and reduce confusion and frustration may very well reduce assault in prison. Training of correctional staff to increase awareness, understanding, and skills in

managing neuropsychologically and psychiatrically impaired inmates is indicated. These same interventions, however, may be irrelevant—or even counter-productive—for reducing staff assault in prison psychiatric treatment.

Inmates who assault in psychiatric treatment staff are significantly more likely not to experience a major mental disorder (24%). Many, if not most, of these inmates should not be admitted to an acute psychiatric program. A major concern for prison psychiatric treatment, therefore, is the criteria for admission. While reducing inappropriate admissions is indicted, it may not be easily accomplished. In this study, 61% of inmates gained admission by reporting suicidal intent. Twelve percent attempted to harm themselves while in psychiatric treatment. Administrative policies may provide little incentive for referring clinicians to make judgments as to relative risk, since referral for inpatient treatment shifts responsibility—both clinical and legal—for protection, evaluation, and treatment of the inmate from Corrections to the psychiatric program. Increasingly conservative approaches to suicide risk likely contribute to a proportionately higher number of inmates admitted for psychiatric treatment, despite absence of a major mental disorder. Additionally, clinical experience tells us that inmates become quite proficient at reporting the “right” psychiatric symptoms, particularly in brief interviews. Again, when the responsibility of evaluation is disproportionately allocated to the psychiatric program, inappropriate referrals increase in number.

One solution for these problems may be attempted by conducting more thorough pre-admission evaluations as a prerequisite to referral. Unfortunately, the motivation for increased diligence may be negated by other gains. When a potentially assaultive inmate is admitted to psychiatric treatment, not only is he removed from the referral area, but the problem behavior(s)—whether caused by a mental disorder or not—becomes the responsibility of the psychiatric treatment program. For inmates who do not have a major mental disorder, the custody environment—not the psychiatric treatment environment—is better able to manage assaultive behavior. Another solution may be for psychiatric treatment programs to develop risk assessment instruments that identify inmates who are at higher risk for assault of treatment staff and protocols for the treatment and discharge of these patients. Two apparent concerns for the development of a risk assessment instrument, however, are: (1) assuring that the risk assessment has appropriate validity, reliability, sensitivity, and specificity, and (2) assuring that inmates who are identified as being “at risk” are treated ethically, professionally, and appropriately. Developing an appropriate treatment protocol for those inmates who are identified as being “at risk” would be paramount.

Results from this study provide several directions for future research. As indicated, cross-validation of the data is a reasonable next step. If this cross-validation provides acceptable sensitivity and specificity, the development of a risk assessment instrument to identify inmates who are at higher risk for assault also would be a next step. As indicated, however, the concern in this prison environment is that appropriate steps are taken to assure not only the validity of the indicators, but also to assure that protocols are developed to assure the ethical treatment of inmates who are identified as being at risk are in place and are monitored. Overall, the best management of assault risk in prison and prison psychiatric treatment may need to include clinical judgment, actuarial support, and administrative policy changes.



## APPENDIX A

## Violence Rating Scale

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1—Nonviolent Offense	Drug offenses, Fraud, Prostitution, Curfew violation, Disorderly conduct, Trespassing, Begging, Failure to provide for spouse
2—Ambiguous Violence	Escape, Driving offenses, Theft, Possession of Weapon, Possession of stolen property, Violation of probation/parole
3—Property Crimes	Vandalism, Burglary, Grand theft auto, Taking vehicles without owner consent, Malicious mischief
4—Threats to Persons	Indecent exposure, Robbery, Lewd and lascivious, Exhibiting a deadly weapon, Intimidating a witness
5—Attacks on Persons	Car jacking, Assault, Rape, Incest, Child Molesting, Forced oral copulation, Kidnap, Resisting arrest, Arson, Battery, False imprisonment, Spousal abuse
6—Loss of Life	Murder
7—Loss of Life/Extreme	Murder with special circumstances, Serial murder, Torture, Serial rape, Rape with torture

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## APPENDIX B

## Prison Offenses (CDC 115)

*Serious Rule Violations*

- Use of force or violence against another person
  - Physical assault on staff/inmate
  - Sexual assault on staff/inmate
  - Physical fight
  - Physical resistance of staff intervention
  - Hostage taking of staff/inmate
  - Gassing
  - Fire Setting
- 

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