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Assessing the Role of Neuropsychological Functioning in Inmates' Treatment Response

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INTRODUCTION

One of the most pressing issues within corrections today is the presence of inmates who are unresponsive to authority, repeatedly violate institutional rules, victimize within the institution, and are responsible for high post-release recidivism rates (Corrections Program Office, 1999). These same inmates, whether predatory or impulsive, often show poor decision making skills and lack behavioral self regulation. And importantly, they tend not to respond to conventional treatments in spite of their greater need for intervention. Yet, few correctional facilities have the knowledge or resources to attempt to more effectively treat these inmates given that the supportive research is lacking. Many triage them into 23-hour segregation units to minimize the safety concerns they pose and to avoid consuming scarce treatment resources on a population that does not respond to conventional approaches. Research suggests that a significant number of these inmates have psychopathic characteristics that further complicate treatment efforts and worsen their post-release outcomes. In response to the inability to effectively treat these inmates, several states screen for psychopathy to exclude them from treatment in an effort to avoid waste of precious resources on those who are not likely to respond favorably. For example, some states disqualify drug abusing offenders with high scores on the Psychopathy Checklist (PCL-R) (Hare, 1991) from treatment programs. Overall, there are few concerted attempts to treat these inmates, and most efforts have not fared well (Hare, 1999). Correctional administrators see clear public safety benefits to being able to accurately identify these inmates and more effectively direct treatment resources. In the absence of a thorough understanding of what underlies inmates' persistent misconduct and treatment resistance, we will continue to fail to reach this very important subgroup, which is responsible for the majority of serious, violent crimes in our communities.

Evidence is mounting from interdisciplinary research and clinical investigations to implicate dysfunction of the thinking process, perception of social cues, and regulation of emotional responses to stressful or provocative situations in this difficult and unresponsive subgroup. In particular, impairments in higher order cognitive skills, called executive cognitive functions (ECF), and emotional regulation are thought to play a significant role in violence and psychopathy and to potentially explain the seemingly callous disregard for threats of punishment, rules and values, and future consequences, as well as an excessive need for stimulation and reward. Because ECF impairments are malleable, there is potential for affected individuals to respond favorably to treatment approaches that are specifically targeted to existing deficits. Incorporation of this knowledge into criminal justice policies and practices could alter their course substantially to dramatically improve the ability to assess, detect, and treat offenders who are currently considered intractable.

A primary goal of the research reported herein was to identify fundamental differences in ECF function and emotional perception and regulation between inmates who respond favorably to standard correctional therapies, which are often cognitive-behavioral in approach, and those who respond poorly. Studies suggest that ECF and emotional dysfunction is prevalent within the inmate population, in some cases the result of a high incidence of head injury and in others possibly due to suboptimal child development, genetics, or a history of adversity. This research further shows that offenders with relative deficits in cognitive and emotional regulatory did not respond well to a standard correctional treatment, as reflected in low retention, poor engagement and compliance, repeated institutional infractions. This knowledge may serve to inform the field as to individual characteristics that distinguish between inmates positively affected by various interventions relative to those least affected and determine what components are needed to design an effective intervention strategy (e.g., intensive cognitive rehabilitation).

The second purpose of this research was to develop an assessment tool that can be readily used within both correctional and clinical settings to identify aggressive, psychopathic and otherwise high risk offenders with cognitive deficits. The ultimate goal is to develop a knowledge base that would allow for triaging inmates to targeted treatments on the basis of underlying ECF deficits. Because the subgroup of inmates that does not respond to conventional treatments often possess underlying individual vulnerabilities and adverse social conditions that compound their problems and are particularly at risk for persistent serious criminality and substance abuse, this subgroup likely requires more intensive and customized approaches. Accordingly, inmates will be better equipped to maintain control over their own behavior rather than requiring severe methods of external restraint that are suddenly terminated upon release. Consistent findings indicate that far fewer crimes are committed when individuals are actively in treatment (see Fishbein, 1991; Fishbein and Pease, 1996). At present, the only instrument that reliably predicts institutional misconduct, poor treatment response and post-release commission of serious offenses is the Psychopathy Checklist- Revised (PCL-R; Hare, 1991). Unfortunately, however, while this instrument is highly predictive, others without psychopathy who are also at high risk for serious offending are not covered and the PCL-R is not indicative of underlying mechanisms for poor treatment and post-release outcomes which might direct future treatment approaches. Instead, development of a sensitive and specific screening test is necessary to predict recidivism, institutional misconduct, and/or drug abuse relapse for a variety of inmates and which also provides information about what deficits may be preventing positive outcomes. This development would constitute an important advance for treatment planning.

This research may further enhance the potential to improve criminal justice policies. Informing the criminal justice, mental health, and public health systems of this genre of research findings is critical to address the triggers (both causal and exacerbating) in the social environment that can contribute to violence and psychopathy in susceptible individuals. Incorporating this knowledge regarding underlying generators of misconduct and aggression into criminal justice policies has potential to reach a greater proportion of the population than will individual treatment programs and may contribute eventually to large-scale, system-wide policy changes, such as in processes affecting bail, pretrial detention, sentencing, and release decisions, as well as child rearing and school practices. The availability of more effective treatments for various antisocial behaviors will offer policy makers additional tools in preventing and responding to criminal conduct. An understanding of underlying mechanisms in misconduct has the potential to produce more favorable treatment outcomes in offenders and to improve the prevention of behavioral problems.

This manual constitutes the final product of this study. Given the unique potential for practical use of these findings, this manual describes neuropsychological techniques used in the present study which can be practically employed in correctional settings for characterizing inmates, predicting treatment response, and designing effective treatment strategies. This manual delineates procedures and tests that best predict treatment response and for which inmate subtypes, along with a discussion of interventions that have the most potential to address ECF deficits in aggressive and recalcitrant offenders for eventual implementation and evaluation.

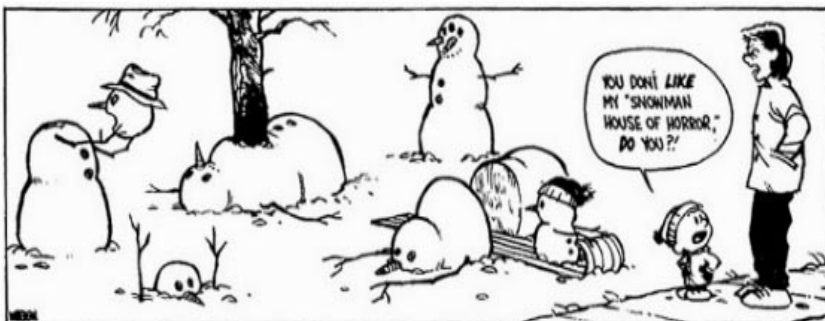
CHAPTER 1: BACKGROUND

Several correctional treatment programs are reportedly “effective” for a statistically significant number of inmates; however, these numbers do not provide support for their widespread clinical utility in aggressive, persistently noncompliant or psychopathic offenders. There is invariably a substantial and “influential” subgroup that does not respond to treatment favorably, exhibiting high levels of antisocial and disruptive behavior within and outside of the correctional environment. It is critical that underlying mechanisms for these differential effects are identified to improve treatment efficacy. Integrity of neuropsychological function and its control over emotional responses may represent key dimensions of regulatory processes involved in persistent misconduct and may play a principal role in differential responses to treatment programs. Neuropsychological capabilities specifically related to higher-order executive cognitive functions (ECF) are of particular interest given their role in impulsivity, sensitivity to consequences, decision making, attention, and social skills. There is strong evidence for ECF and emotional impairment in a significant proportion of antisocial offenders, which may be related to their recidivism and resistance to authority and standard treatments. Understanding the mechanisms that underlie poor responses to treatment will maximize the return on investment that correctional administrators direct toward intervention strategies by making it possible to triage inmate subgroups based on programming needs.

This project was designed to identify ECF and emotional deficits in inmates with poor behavioral outcomes in a standard but high quality correctional therapy. A program with a cognitive-behavioral therapy (CBT) base was selected given its widespread use in U.S. prisons. Although there is evidence for its efficacy, a significant subgroup does not respond well, as indicated by high recidivism and relapse rates, as well as poor attendance, compliance, and retention rates. The Maryland Public Safety and Correctional Services Administration provided their approval to conduct a study of over 200 inmates entering CBT programs in three Maryland institutions. Psychological, behavioral and background questionnaires were administered and ECF and emotional deficits assessed using sensitive and specific neuropsychological tasks. Emotional stress responses (via the hormone cortisol) to a stressful task were monitored. Also, a virtual reality technique was employed to measure actual risky decision making pre- and post-intervention. It was hypothesized that inmates who do not respond favorably to CBT would be those with relative deficits in ECF and emotional regulation. Thus, this study assessed the predictive validity of these instruments and, importantly, attempted to elucidate some underlying mechanisms in subtypes of inmates that will be instructive in developing targeted treatment strategies.

Antisocial Behavior Defined

Antisocial behavior or persistent misconduct are complex concepts defined variably in different disciplines and arising from widely diverging origins. No single mental disorder is

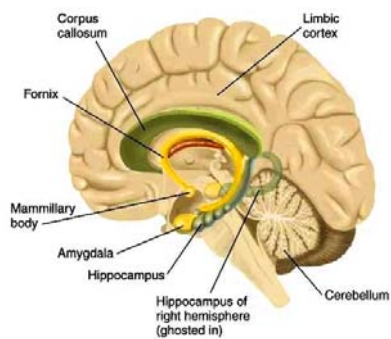


uniquely associated with antisocial behavior, nor are specific behavioral patterns, childhood experiences, or social circumstances. From the array of characterizations, however, emerges a subgroup of individuals who persistently engage in impulsive and

dysregulated behavior, are intermittently aggressive, and are prone to substance abuse. This group is typified not simply by the behavioral outcome but by relatively stable personality and temperamental traits, including insensitivity to consequences, negative affect, and cognitive deficits. Displays of antisocial behavior are, hypothetically, an outgrowth of these traits in interaction with aggression-prone situations. By contrast, individuals who exhibit only isolated displays of antisocial behavior may be more influenced by social and situational factors and probably do not possess the requisite conditions to produce a true “vulnerability” to a destructive behavioral pattern. This depiction corresponds with the pattern described by Moffitt (1993, 1994) who characterizes a subgroup of chronic offenders by “life-course persistent antisocial behavior culminating in a pathologic personality.”

Impulsivity is the most common behavioral and psychological trait cited in antisocial individuals (Eichelman, 1992; Eichelman et al., 1993; Meloy, 1988; Volavka, 1995). Also known as “reactive” or “affective” aggression, impulsive aggression is (a) characterized by high emotional and physiological arousal; (b) committed primarily to intimidate and dominate others; and (c) not planned behavior. Impulsive antisocial behavior or misconduct may be uniquely generated by impairments in the ability to accurately perceive emotional cues and then to regulate responses to them. These regulatory abilities are modulated by the prefrontal cortex and its communication with lower structures in the limbic system which is responsible for emotional reactions to social information (see Figure 1) (Davidson et al., 2000). Low scores on ECF tasks have been reported in numerous studies of impulsive-aggressive subjects relative to various control groups (Atkins et al., 1993; Atkins & Stoff, 1993; Barratt et al., 1997; Gerstle et al., 1998; Houston & Stanford, 2001; Mathias & Stanford, 1999). Understanding mechanisms in impulsivity is relevant to the treatment of antisocial behavior (Davidson et al., 2000). Thus, the research described herein explored the possibility that the neuropsychological correlates of impulsive misconduct influence treatment outcomes.

► Major Components of the Limbic System



as “psychopaths.” Psychopathy is a personality trait thought to characterize about 1% of the general population and about 20% in the prison population. Psychopaths are thought to be responsible for over half of all violent crimes (Hare 1991). And importantly, they are characterized by cognitive, emotional and physiological deficits (Blair et al 2001; Dawes et al., 2000; Lorenz et al 2002, Brower et al 2001, LaPierre et al 1995) that are manifested as poor decision making, insensitivity to consequences, behavioral disinhibition, inattention, and attenuated emotional responses (McCloskey et al 2005, Campanella et al 2005, Blair 2003). These dimensions of ECF underlie social competency skills that, when in deficit, may contribute to high risk behaviors. Ample research has reported a high incidence of ECF deficits in populations that typically engage in high risk behaviors, including drug abusers (Fishbein et al., 2005; Tarter et al., 1999), alcoholics (Sullivan and Pfefferbaum, 2005), children with conduct disorder (Bauer & Hesselbrock, 2001), and criminal offenders (Brower and Price, 2001). ECF deficits in psychopaths may contribute to the regulatory dysfunction of cognitive and affective processes that may underlie both their risky decision making and their emotional detachment. Importantly, psychopaths do not respond favorably to standard treatments for either antisocial behavior or for drug abuse (Hill et al., 1996; Shine & Hobson, 2000; Rice, 1997). Thus, it is essential that tendencies toward psychopathy are considered in the assessment of inmates and

the development of targeted treatments given their likely need for a differing approach. The following review discusses the role of ECF and emotional deficits in persistent misconduct and the confounding role of substance abuse.

Evidence for Neuropsychological Impairments in Antisocial and Unresponsive Inmates

Recent research on underlying mechanisms in antisocial behavior and also psychopathy may be applicable to developing more effective correctional treatments for subgroups that tend to be unresponsive to standard approaches. These inmates are largely responsible for (a) a disproportionate amount of aggressive crimes against persons, (b) high recidivism rates, (c) a significant number of institutional rule violations, (d) high rates of substance abuse, and (e) poor treatment outcomes (Hill et al., 1996; Shine & Hobson, 2000; Rice, 1997). Repetitively conduct disordered offenders are often diagnosed with Antisocial Personality Disorder (ASPD), and a subset of these as psychopaths. Their personal histories are typified by childhood aggression, insensitivity to punishment, emotional dysregulation, risk taking, and sensation seeking. These inmates are recommitted more often than other inmates, a majority of them recidivate with aggressive offenses (Hare, 1999; Hare & McPherson, 1984; Hart et al., 1988; Lynam, 1996), and they are more likely to develop an early and more severe course of drug abuse (Hubbard et al., 1989). Treatments appropriately targeted to the generators or triggers of antisocial behavior may make prisons safer, reduce the public risks of releasing these inmates untreated, and establish humane and effective treatment procedures (Fabiano et al., 1990a, 1990b, 1991; Robinson, 1995; Serin, 1994).

Executive Cognitive Function and Impulsive Misconduct

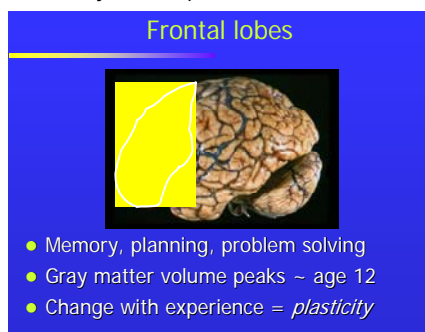
Studies have consistently found that deficits in certain neuropsychological functions correlate with aggression, impulsivity, and other forms of persistent, serious misconduct. Most investigations have used traditional neuropsychological tests whose reliability and sensitivity for dysfunction have been variable (Rogers & Robbins, 2001). Newly developed neurocognitive instruments detect specific cognitive deficits with more sensitivity to produce results with potential for practical use. Measurement of ECF, a subset of neuropsychological abilities, has become more refined (but is not without methodological and conceptual controversy) (Lyon & Krasnegor, 1999). ECF deficits implicated in antisocial behavior are thought to be responsible for poor social skills and decision-making ability, insensitivity to punishment, impulsivity, and inability to regulate emotional responses (Dawes et al., 2000). ECF deficits contribute to personality traits and disorders often cited as antecedents for antisocial behavior, most notably early and persistent aggression, psychopathy, substance abuse, conduct disorder, and attention deficit hyperactivity disorder (Fishbein, 2000a; Giancola et al., 1996, 1998; Paschall & Fishbein, 2001; Tarter et al., 1999). Prevalence of neuropsychological dysfunction is significantly higher in these populations than in offenders who do not engage in persistent misconduct (see Rogers & Robbins, 2001; Reiss et al., 1994; Raine, 1993; Volavka, 1995).

Antisocial behavior is typified by several antecedent behavioral and psychological traits associated with ECF deficits (e.g., impaired goal-directed behavior, history of conduct disorder, sensation seeking, attention deficits, and poor problem solving) (Barratt et al., 1997; Mirsky & Siegel, 1994; Moffitt & Henry, 1989; Schonfeld et al., 1988). Impairments in ability to assess consequences and act on that assessment, as reflected in the personality trait of impulsivity, may underlie these traits (Barratt & Patton, 1983; Gray, 1983; Gray & McNaughton, 1983; Newman, 1987; Shapiro et al., 1988). Thus, the link between brain function abnormality and aggression may be explained by altered cognitive capacities. Impaired ECF may compromise the ability to interpret social cues during interpersonal interactions, which may lead to

misperceptions of threat or hostility. As a result, difficulties arise in generating socially adaptive behaviors and executing responses to avoid aggressive or stressful interactions. Also, compromised cognitive control over behavior may permit hostility, negative affective states, and other maladaptive responses to dominate (Giancola, 1995).

Studies to localize regulatory mechanisms in cognitive impairments that underlie antisocial behavior implicate the PFC, as mentioned above (Bryant et al., 1984; Elliott, 1992; Moffitt & Henry, 1989), located in front of the brain and responsible for higher intellectual function. Because certain regions of the PFC play a role in forethought, behavioral inhibition, and capacity to learn from experience (Bechara et al., 1994; Bechara et al., 1996; Damasio et al., 1990), neuropsychological functions known to be executed by the PFC are of particular interest (see figure 2).

The PFC also plays a role in the regulatory system controlling emotions and moods, which can be measured in hormonal responses (e.g., cortisol) (Brutus et al., 1986; Elliott, 1992; Volavka, 1995). There is evidence that a disconnect between the PFC and structures in the limbic system (an emotional center) may be responsible for disinhibited behavior, inability to act on an assessment of consequences, and poor emotional perceptions and regulation (Davidson et al., 2000). The novel and sensitive test battery proposed for use in prisons focuses on functions that have been linked to activity in the PFC and its connections with the limbic system.



Evidence for PFC-related neuropsychological dysfunction in antisocial behavior, particularly aggression, is compelling (Moffitt and Henry, 1991); numerous studies have linked PFC activity with specific cognitive deficits found in aggressive subjects (Hare, 1984; Mungas, 1988; Seguin et al., 1995). Psychopaths who have been characterized as aggressive have been distinguished from nonpsychopaths on the basis of neuropsychological functioning of the PFC (Gorenstein, 1982). Prefrontal lobe damage was reported in 73% of subjects with a history of violent crimes compared with 28% of those with no such damage (Bryant et al., 1984). Studies that use neuroimaging techniques to monitor brain activity (e.g., PET, fMRI) have found diminished brain activity in the PFC in individuals with persistent violent behavior (Goyer et al., 1994). Raine et al. (1997) examined 41 murderers and 41 age-matched controls using PET and a continuous performance task that produced increases in glucose metabolism in the PFC of control subjects (Buchsbaum et al., 1990). Murderers exhibited reduced glucose metabolism during cognitive performance in the PFC and other regions that modulate emotions and cognitive processes. Raine et al. (2000) reported an 11% reduction in brain volume in the PFC of psychopathic, noninstitutionalized individuals. These measures predicted group membership with an accuracy of 76.9%; 71.4% of the group had been arrested. Raine concluded that these findings support a diversity of studies showing deficits in cognitive abilities modulated by the PFC in violent subjects.

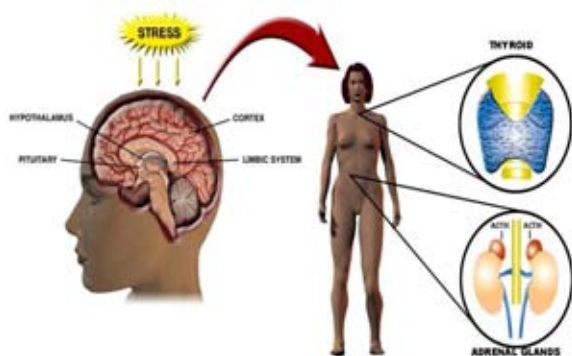
Studies conducted by our research team have further shown that the brain regions responsible for processing executive cognitive stimuli and emotional stimuli are reversed in psychopaths. In other words, psychopaths processed cognitive information that involved rewards and penalties in the limbic system and emotional information that involved “threat cues” in the PFC, which is opposite what is observed in normal control subjects (Flannery et al., in review). These findings may be explained by a possible disconnect between limbic and PFC regions that leads psychopaths to pay greater attention to the possibility of a reward irrespective of the likelihood of a penalty. As a result of these neurological differences, psychopaths may be

more at risk for cognitive deficits, hypersensitivity to rewards and hyposensitivity to penalties, lack of inhibitory control, absence of empathy, manipulativeness, and emotional detachment. In order to identify brain regions potentially involved in deficits underlying poor treatment outcomes, neuropsychological tasks selected for this research were shown in neuroimaging studies to activate regions of the PFC and functionally relevant regions of the limbic system. Knowledge regarding the functional neuroanatomy of a cognitive task has potential implications for understanding the underlying mechanisms in behavioral dysregulation and provide a mechanistic account of how treatments may exert their effects (Charney and Deutsch, 1996; Bremner, 2003).

Emotional Perception and Regulation and ECF

Neuropsychological mechanisms that underlie perception of emotional cues most likely contribute to decision making within a social context. Studies using neuropsychological tasks and biological measures of the neural circuitry between the PFC and limbic system show that a combination of a propensity to negative affect and inability to shift behavioral strategies in response to anticipated negative consequences of acting aggressively is associated with antisocial behavior (Davidson et al., 2000). The ability to accurately perceive emotional cues in social settings and regulate behavioral responses to them is equally as important as higher order neuropsychological skills in understanding persistent misconduct. Tests that assess the ability to identify emotion in facial expressions, for example, are particularly good at in measuring emotional perception and have been shown to discriminate between aggressive and nonaggressive subjects (Gorno-Tempini et al., 2001; Stevens et al., 2001). The research described herein measured ability to perceive emotional cues (emotional task) and emotional reactivity (cortisol responses), which are believed to be impaired in a variety of antisocial behaviors, including aggression and substance abuse.

Support for the connection between ECF, emotional regulation, and antisocial behavior comes from research on acute and chronic effects of social stress (e.g., child abuse or family dysfunction) on biological systems that regulate hormone release (Meaney et al., 1996), as depicted in Figure 3. The function of the hypothalamic-pituitary-adrenal (HPA) axis, which involves glands that regulate release of stress hormones (e.g., cortisol), is particularly relevant to behavior that is emotionally driven. For example, physiological responses to stress have been related to persistent aggression (e.g., McBurnett et al., 2000). The hormone cortisol is centrally involved, increasing during acutely stressful episodes (Anisman et al., 2001); cortisol levels are influenced throughout life by social factors and experiences. Regions in the limbic system are the targets of cortisol release. In response to chronic or severe stress, excessive cortisol levels cause these structures to shrink, producing memory and cognitive decline, as well as depressive and other affective disorders. Eventually, in response to chronic or severe stress, the HPA axis will become exhausted, leading to a depletion of cortisol; thus, low cortisol levels are associated with stress-related disorders and inability to regulate emotion.



Studies of hormonal indicators of emotional state, and its relationship to aggressiveness and antisocial behavior, have consistently reported low cortisol responses in psychopathic criminal offenders (Raine, 1993) and in boys with aggression or at high risk for substance abuse

(Dawes et al., 1999; McBurnett et al., 2000; Moss et al., 1999). Such deficits are considered to reflect an underarousal of emotional systems that regulate the ability to process, interpret, and react to social cues (Walker et al., 1991). Involvement of the PFC in low emotional arousal among psychopaths and other aggressive offenders may contribute to blunted behavioral and hormonal responses to various tasks, outwardly expressed as reduced responsiveness to socially meaningful stimuli. Supportive caregiving in early childhood is essential for proper development of the PFC, which must be fully functioning to inhibit inappropriate emotional responses (Bremner, 1999). Thus, the dual presence of a lack of proper parenting and social adversity, which is common in the inmate population, increases the likelihood of ECF deficits and emotional dysregulation. This research assessed release of cortisol in response to an emotionally stimulating task and found that these measures were useful in predicting treatment response (e.g., readiness, institutional misconduct), as described later.

The Role of Stress and Adversity

Sources of damage to neural circuits that may disrupt ability to assess consequences and regulate impulses include head injury, prenatal drug exposure, neurotoxins, childhood deprivation, and chronic drug use. Many of these factors are environmental, suggesting that the brain, especially the prefrontal cortex, is exquisitely sensitive to physical and social influences. Environmental conditions directly influence brain function and behavior, affecting functions of the brain and determining the level of vulnerability to high risk behaviors. Adversity or stressful conditions, particularly those experienced in early life, may compromise social, behavioral, cognitive and emotional functioning in profound ways. There is evidence that early stress can produce developmental delays of the prefrontal cortex and its connections with limbic structures, potentially compromising these regulatory functions in adulthood (Bremner et al., 1999; Bremner et al., 2000; Critchley et al., 2000; Davidson, 1994; de Haan et al., 1994). Exposure to chronic stressors can further alter hormonal systems that modulate these functions (Huether, 1998); chronically elevated levels of these hormones like cortisol have potential to reduce volume of areas of the brain responsible for learning, memory, and emotions, potentially impairing memory and decision making (Nelson & Carver, 1998; Sapolsky, 1996). The functional consequences of alterations in these neurobehavioral processes are poor stress adaptations manifested as impaired social, cognitive, psychological, and emotional responses thought to be critical in propensity to various high risk behaviors. Piazza and LeMoal (1998) have proposed that stress “primes” the brain’s reward pathway and thus enhances the positive (mood enhancing) and negative (stress relief) reinforcement of continued drug use and other high risk and novelty seeking behavior. Antisocial behaviors may therefore occur as a maladaptive behavioral and physiological coping response to stressful stimuli (Shiffman, 1982).

Perhaps not coincidentally, the incidence of adverse social (e.g., child abuse) and physical (e.g., head injury) experiences is high in offender populations (Martell, 1992; OJJDP, 1998; Volavka et al., 1992). Those with brain dysfunction are significantly more likely to have been indicted for violent crimes (Martell, 1992; Raine et al., 2000). Identifying the origin and significance of these deficits is essential to designing targeted prevention and treatment strategies. Treatment effectiveness relies on understanding the relationships among brain dysfunction, cognition, impulse control, and propensity for aggression. Table 1 provides a breakdown of mechanisms believed to underlie behavioral problems, with the first two boxes showing factors that contribute to alterations in physiological responses which can be manifested as deficits in executive cognitive and emotional regulatory functions, as shown in the third box. In turn, such deficits often result in behavioral problems. The table concludes with a few suggested interventions that may be indicated, based on deficits which an inmate presents.

Table 1

Environmental Risk Factors:

- Poverty
- Poor Nutrition
- Head injury
- Psychosocial stressors
- Acute and chronic drug abuse
- Environmental exposures (e.g., lead)
- Family dysfunction

Plus

Genetic and Prenatal Contribution:

- Prenatal drug exposure
- Transmission through direct routes (e.g., gene deviations)
- Transmission through related risk factors (e.g., temperament)

Contributes to Deficits In:

Physiological Responses:

- Prefrontal cortex
- Limbic system
- Prefrontal-limbic circuitry
- Autonomic nervous system
- HPA axis hormonal responses

Executive Cognitive and Emotional Regulatory Functions:

- Behavioral inhibition
- Decision making abilities
- Goal oriented behaviors
- Socially adaptive behavioral responses
- Sensitivity to consequences
- Recognition of emotional cues
- Regulation of emotional responses

Increases Risk For:

Behavioral Problems:

- Aggression
- Drug abuse
- Antisocial behaviors
- Relapse
- School failure
- Unresponsiveness to interventions

Prevention or Treatment

Promising Intervention Strategies:

- Cognitive neurorehabilitation
- Training in problem solving and social skills
- Social information processing therapies
- Language therapy
- Dialectical Behavioral Therapy

The Role of Substance Abuse and Addiction

A full understanding of persistent misconduct includes identification of inmates who have psychiatric comorbidity (Monahan, 1992; Mulvey, 1994; Barratt et al., 1997). Substance abuse disorder is one of the most common Axis I disorders associated with antisocial behavior; it is disproportionately represented among aggressive, antisocial offenders (Swanson et al., 1990). Also, traits characterizing antisocial adults generalize to substance abusers, such as attention deficits, conduct disorder, and impulsivity (Tarter et al., 1999; McDermott et al., 2000). In particular, conduct disorder often precedes both antisocial personality disorder and substance abuse; thus, it is likely not a random finding that substance abusers are disproportionately represented in prison populations with a history of violent crime. Although many substance abusers are not more dangerous, the behavior of those who are is often less predictable when compared with the aggressive acts of others (Steury & Choinski, 1995). Research suggests that aggressive behavior often precedes substance abuse and predicts both subsequent



substance abuse and delinquency (Chilcoat & Breslau, 1999; Disney et al., 1999). Thus, it is not surprising that substance abuse has been strongly associated with neuropsychological deficits; there is evidence that such impairment both precedes (Disney et al., 1999) and results from (Cottler et al., 1995; Malloy et al., 1989) substance abuse, potentially exacerbating or triggering aggressive behaviors. Because aggressive offenders with substance abuse disorder require differing treatment strategies, understanding how substance abuse interacts

with aggression may be critical to remediating both problems. This research found that substance abuse moderates the relationship between ECF/emotion and aggression; the co-occurrence of ECF/emotional deficits and substance abuse is particularly predictive of antisocial behavior.

In addition to the possibility that cognitive deficits contribute to both aggression and substance abuse, it should also be noted that most forms of chronic drug abuse impair function of the PFC (Rogers et al., 2000) and further interfere with neuropsychological function (Bolla et al., 2000; Miller, 1985; Rogers et al., 2001; Selby & Azrin, 1998). Some evidence suggests that damage may be longstanding in users of certain substances (e.g., methamphetamine and cocaine) (Ornstein et al., 2000; Villemagne et al., 1998), which may compromise treatment effects and increase risk for both recidivism and relapse (Blume et al., 2000; Rogers et al., 2001; Miller, 1991). Substance abusers with prior conduct disorder and aggressive behavior may be at even greater risk for drug-related impairment (Cottler et al., 1995; Malloy et al., 1989) and relapse (Bauer et al., 1997; Miller, 1991; Myers et al., 1995), although the causal sequence remains unclear—does impairment precede or result from substance abuse? A finding that substance abusers with aggression show greater impairment than those without aggression suggests differences in susceptibility or patterns of neuropsychological function. Thus, accounting for history of substance abuse is critical to understanding offender heterogeneity.

Implications for Treatment

Evidence from clinical studies of head injuries, learning disabilities, and cognitive disorders demonstrates that ECF and related behavioral disorders are amenable to appropriately designed treatments (Hermann & Parente, 1996; Manchester et al., 1997;

Rothwell et al., 1999; Wilson, 1997). With an intervention appropriately targeted, as underlying problems begin to improve, so does ability to regulate behavior and emotions. Several effective cognition-based treatments have been developed to prevent aggression and drug abuse, manage behavioral disorders resulting from head injury or learning disability, and improve self-control (Fishbein, 2000b). For example, individuals who exhibit disruptive behaviors due to head injury do well in cognitive neurorehabilitation programs that focus on problems with impulsivity (Stuss et al., 1999). Development of a test battery to characterize underlying deficits in subtypes within the inmate population will substantially advance our ability to determine an appropriate treatment. The task at hand, then, would be to either develop new interventions or redirect existing interventions for the inmate population based on these characterizations. Treatments with proven effectiveness in noncorrectional settings may become a viable option for correctional administrators who are desperately seeking solutions to the management of these inmates. For example, correctional programs in Canada that characterize aggressive offenders for targeted treatment purposes demonstrate the potential for more effective treatment approaches than those commonly used in corrections (Fabiano et al., 1990a, 1990b, 1991).

Although no study has assessed ECF in the context of a correctional intervention, several studies show that neuropsychological function plays a role in treatment outcomes for related populations. Higher neuropsychological function has been associated with better treatment outcomes in offenders in the community (e.g., less recidivism, reduced sexual offending) and in substance abusers (e.g., lower relapse rates, more attendance in aftercare) (Bauer, 1997; Blume et al., 1999; Self, 1998; Smith & McCrady, 1991; Winterer et al., 1998). Measures of PFC activity are reported to predict relapse to substance abuse far better than clinical or behavioral measures (Bauer, 2001). Cognitive correlates of ECF appear to have a direct impact on treatment outcomes. For example, children with concentration problems did not respond as favorably to a school-based intervention for delinquency as those without such problems (Rebok et al., 1996). Early signs of aggressive behavior played a role in moderating intervention outcomes, including drug use (Kellam & Anthony, 1998; Rebok et al., 1996). Early adolescent drug use is believed to trigger developmental delays in ECF, exacerbating resistance to interventions (Scheier & Botvin, 1995).

Delineating the ECF and emotional substrates of aggression may provide valuable insights for developing therapeutic interventions for inmates who tend to be refractory to conventional treatments. Intact ECF and its regulation of emotional tone may, in fact, be a prerequisite for a favorable response to any treatment program that involves cognitive processing of curriculum materials, such as cognitive-behavioral therapy. Participants with these skill deficiencies are not as likely to benefit from programs that do not first target these deficits. Reliable tools can be applied toward the identification and treatment of the distinct characteristics of these recalcitrant inmates to reduce their misconduct in prison and lower their recidivism. This knowledge should eventually inform the field as to characteristics of inmates least affected by various interventions and identify components of an effective intervention strategy (e.g., intensive cognitive rehabilitation).

This research project applied four critical findings demonstrated in clinical settings to this study of correctional treatment responses: (1) the well established relationship between ECF, emotional deficits, and various forms of misconduct such as aggression and noncompliance; (2) the feasibility and efficacy of using a noninvasive test battery to identify high-risk inmates; (3) the utility of these tests to predict institutional misconduct; and (4) the role of ECF and emotional deficits in poor responses to treatment. An assessment was conducted of inmates volunteering for standard CBT treatment using a battery of ECF, emotional perception and reactivity tasks. Study results are described in the next section and have potential to advance research to

demonstrate that amelioration of the specific ECF deficits associated with persistent misconduct will reduce behavioral problems in inmates.

CHAPTER 2: STUDY DESIGN AND METHODS

This research project reflects an applied research effort based on the substantial literature discussed in Chapter 1 that implicates ECF and emotional impairment in populations that exhibit chronic behavioral problems. Previous studies that examined general neuropsychological ability did not produce measures with the high level of specificity and sensitivity as do recently developed novel ECF tasks (Rogers et al., 2001). Also, no study has predicted institutional misconduct using these measures in an incarcerated population in the context of an intervention until now. Integrity of ECF and emotional perception and regulation were measured using noninvasive, specially designed tasks to establish the role of ECF in poor responses to treatment of aggression among inmates and to demonstrate the utility of these measures in correctional populations.

This study examined the premise that performance deficits in ECF tasks and emotional responses will characterize disruptive inmates and predict treatment response. All inmates were examined using noninvasive behavioral, psychological, ECF, emotional perception, and stress tests. The analyses made adjustments for age. Several other background measures were also included, such as general neuropsychological function, prior drug use, and total amount of time previously incarcerated (which affect ECF), but they did not play a significant role and, thus, adjustments for their influence was not necessary.

Inmate Participants: Selection and Recruitment

The Maryland Department of Public Safety and Correctional Services supports the confinement of about 25,000 men with approximately 10,000 new intakes each year. Approximately 224 male inmates were recruited during intake into the cognitive-behavioral therapy (CBT) program in Roxbury (RCI) and Western Correctional Institutions (WCI) and the Maryland Correctional Training Center (MCTC). Selection of these facilities was based on programmatic rigor as well as similarities between prisons to ensure continuity and uniformity of treatment, duration, type and modality of the program, treatment provider staff, and other environmental factors. Participants were between 21 and 49 years old with a minimum of 1.5 years left on their sentence to ensure an adequate length of stay to evaluate treatment outcomes, and avoid the stress of pre-release preparations and potential for transfers.

Inmates who volunteered provided their consent to complete the Multidimensional Aptitude Battery as an estimate of IQ which is considered to be culture neutral; those with an IQ below 80 were excluded. Older subjects were also excluded due to cognitive decline that occurs naturally over time and the effects of chronic drug abuse on ECF. Those with mental retardation, dementia, amnesia, or delirium and those who are illiterate were excluded because these conditions interfere with performance and because of inability to understand the implications of consent. Although attention deficit disorder is prevalent in this population and may interfere with task performance, it was not exclusionary. The sample was ethnically diverse and representative of the offender population in the state; however, race was not expected to affect results of this study.

In Table 2, a description of the population, including inmates from all three prison facilities, is provided as the results of this project may apply specifically to this sample; a replication is needed in other types of prisons and different types of inmates to determine whether these results apply more globally. In addition to the data provided below, 16.3% (n=41) were Caucasian, 68.1% (n=171) were African American, and 5.2% (n=13) fell into other ethnic/racial categories. A total of 28.3% (71) reported severe head injury and the following

percentages reflect a history of psychopathology among immediate family members: alcoholism: 46.4%; drug abuse: 52.2%; and mental illness: 22.8%. Importantly, there were no IQ differences (verbal, spatial or full) for any of the treatment variables; thus, adjustments were not made for IQ in the analyses.

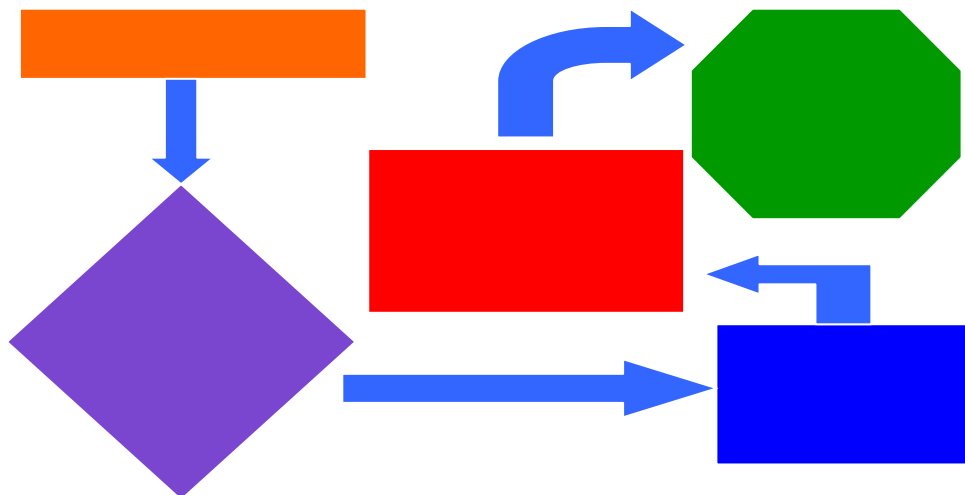
Table 2. Population Descriptives

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--------------------|-----|---------|---------|--------|----------------|
| age of inmate | 224 | 21 | 49 | 31.08 | 5.760 |
| verbal iq | 224 | 70 | 117 | 88.04 | 11.489 |
| performance iq | 224 | 70 | 136 | 90.46 | 15.111 |
| full scale iq | 224 | 70 | 122 | 88.50 | 12.365 |
| months in prison | 221 | 1 | 251 | 38.67 | 40.525 |
| years of education | 224 | 4 | 21 | 11.39 | 1.690 |
| weight | 220 | 135 | 360 | 202.37 | 36.936 |
| height | 220 | 60 | 83 | 67.26 | 3.080 |

Design

Consenting inmates received baseline testing of several complementary dimensions of ECF and conditions that influence it: (a) 3 ECF and 1 emotional perception tasks; (b) salivary cortisol responses to a stressful task and the Symptom Checklist-90 taken beforehand to determine present psychological state; (c) a general neuropsychological test;² (d) several psychological and behavioral surveys; and (e) an historical inventory to assess prior drug use and child and family background (see Table 2). In addition, interactive virtual reality vignettes were used to assess actual pre- and post-treatment change in decision making. The first half of the test session lasted about 2 hours and the second half was about 1.5 hours and occurred in the afternoon when salivary cortisol is more stable. The Director of Health Services in the Department of Public Safety and Correctional Services provided approval to survey their Management Information System (OBSCIS) to determine inmates' history of violent crimes and institutional infractions (e.g., dates of prior arrests and convictions, offense types, conviction status, sentence, and present incarceration length). Cutoff scores were derived from each survey instrument and official record to categorize inmates into clinically relevant subtypes (e.g., drug abuse, impulsivity, psychopathy, violent, etc.) and assess correlations between them. The variable set that best discriminated between inmates who performed well and poorly in treatment were then assembled into an assessment battery with high predictive value. This chapter describes the study and results and, in the next chapter, a test battery is described that is recommended for evaluations of inmates to determine the most effective course of action.

² It is important that generalized neuropsychological function be assessed to make adjustments for possible differences between groups and to specify the role of ECF independent of gross neuropsychological dysfunction.



Hypotheses

This study tested the primary hypothesis that performance deficits in ECF tasks and emotional responses will characterize disruptive inmates and predict treatment response. All inmates were examined using noninvasive behavioral, psychological, ECF, and hormone tests. Adjustments were made for age in all analyses. In linear regressions, general neuropsychological function, prior drug use, total amount of time previously incarcerated (which affect ECF), and other background factors were also considered. Specific hypotheses included the following:

H1. ECF performance (neuropsychological task performance), emotional perception (emotional task performance), and emotional regulation (cortisol response to a stimulating task) will be interrelated.

H2. These independent variables will predict treatment outcomes among inmates participating in a cognitive-behavioral therapy program. Outcome measures included treatment readiness, responsivity, and gain, change in executive decision making and aggression, rates of institutional misconduct, noncompletion, and other specific performance indicators of treatment response.

H3. These independent variables will be associated with psychopathy, a history of aggressive crimes against persons and an aggressive personality style.

H3a. ECF, emotional perception, and emotional regulation will discriminate between subtypes of aggressive inmates (drug abusers vs nonusers, psychopathic vs nonpsychopathic). Although a few instruments significantly predict violence (e.g., PCL-R), these measures do not provide clinically useful information about underlying mechanisms.

H4. The interaction between measures of psychopathy and substance abuse with ECF measures and rate of change in hormone levels will explain a significant amount of the variance in treatment responsiveness. Specifically, inmates with high scores on the Levenson Psychopathy Scale (LPS) and ECF/emotional deficits and those with a history of substance abuse and ECF/emotional deficits will respond less favorably to treatment.

Behavioral, Neuropsychological, and Psychological Test Battery

Questionnaires were administered after the ECF and emotional tasks to avoid the effects of fatigue on cognitive functioning. These tests characterized inmates to (a) adjust for their independent and interactive effects on aggression and other forms of misconduct, (b) correlate them with performance on cognitive tasks to determine whether they are related to misconduct, and (c) relate them to treatment performance. Given evidence that these characteristics can complicate treatment efforts (e.g., psychopathy), interactive effects were analyzed. Each of these instruments appears in the appendix.

General Neuropsychological Function.

The **Multidimensional Aptitude Battery (MAB)** was administered to identify general intellectual deficits that may have resulted from head injury or other causes and to isolate the contribution of ECF to aggression, given that higher cognitive abilities rely on the integrity of general intelligence. When these more basic functions are impaired, ECF can be expected to suffer as well. This helps us to determine what level of treatment may be necessary. The MAB was developed by Jackson (1984) to be an alternative to the WAIS-R to measure general intelligence in a group setting for participants aged 16 and above (Carless, 2000). Due to time constraints of testing in a prison setting, the short form version of the Multidimensional Aptitude Battery was chosen for this study. The short form version by Hill and Jackson (1984) consists of the comprehension, similarities, digit symbol and spatial subscales and very aptly predicts full scale IQ (Hill & Jackson, 1984).

Questionnaires

A revised version of the **Addiction Severity Index (ASI)** (McLellan et al., 1992) was used to assess nature and extent of prior drug use, background factors such as socioeconomic status (Hollingshead rating), religious preference, race/ethnicity, family history of drug use, alcoholism, and mental illness, head injuries, child abuse, medical and psychological status, and other demographic factors.

The **Psychopathy Checklist-Screening Version (PCL-SV)** (Hare, 1991; Hart et al., 1995) is a self-report version of the PCL-R showing high correlation with the original test (Hart et al., 1995). This test was used to characterize inmates on the basis of psychopathic personality traits so that those with high scores could be separated from the rest of the population to determine whether their treatment outcomes were related to different factors. In analyses, the effects of psychopathy and its relationship with neuropsychological status on treatment outcome was examined.

The **Reactive-Proactive Questionnaire (RPQ)** (Raine et al., in press) enabled us to assess neuropsychological differences between predatory (proactive) and impulsive (reactive) aggressive inmates and determine the extent to which these distinctions interact with ECF to contribute to treatment outcomes. Given evidence that the brain function and behavior differ between those who are impulsive differ from those who are deliberate, we anticipated that these subtypes would also differ in factors that contribute to their treatment outcomes.

A **Success Inventory** was developed for two purposes. First, this instrument allows us to determine whether their treatment progress is related to the inmates' feelings of failure due to parental admonishments or insults, or earlier experiences in school that may contribute to

frustration with classroom-like settings. Second, this instrument asks inmates about their reasons for volunteering for treatment, how they feel about being in treatment, and whether or not they have tried treatment in the past. In some cases, inmates have reasons other than seeking treatment for volunteering or they have had negative experiences in the past. Thus, a full evaluation of factors that underlie treatment response includes this type of assessment.

The **Early Trauma Questionnaire** (Bremner et al., 2000) assesses traumatic events, including accidents and serious family illnesses, parental loss, murder of family member or friend, and violent crime victimization. Inmates rate the frequency with which events occurred to them before the age of 18 on a scale from 0 (never happened) to 2 (happened 2 to 10 times). This instrument was included to assess lifetime adversity which is known to impair development of the prefrontal cortex and, in turn, neuropsychological function. Because the offender population is characterized by an unusually high rate of adversity such as child maltreatment and other severe stressors, the intent was to determine the role of adversity in their cognitive and emotional functioning as it relates to treatment outcomes.

ECF Tasks

Cognitive tasks are computerized and non-intrusive – they do not produce physical or emotional discomfort and most participants enjoy completing them. Inmates were tested at a time that did not interfere with meals, lock-downs, or counts. Each task takes 10-20 minutes and is described in full in the appendices.

The **Cambridge Decision Making Task** (CDMT: Rogers et al., 1999a, 1999b) was developed to dissect the cognitive components involved in decision making and measures willingness to take risks and sensitivity to consequences. It has been found to have sensitivity and specificity in high-risk populations (Fishbein et al., 2001) and reliably activates a portion of the PFC involved in social skills, impulse control, and sensitivity to rewards. The subject is told that the computer has randomly hidden a ring inside one of 6 red or blue boxes arrayed at the top of the screen and to decide which box contains the ring. This decision involves gambling a certain number of points associated with each choice (odds are 10 vs 90, 20 vs 80, 30 vs 70, 40 vs 60, and 50 vs 50). If the subject chooses the correct color, the points associated with that choice are added to the total points score; if the subject chooses the wrong color, the same points are subtracted. The ratio of colored boxes (5:1, 4:2, and 3:3) and the balance between the associated rewards vary independently between trials according to a fixed pseudorandom sequence. This sequence ensures that each balance of reward and each ratio of colored boxes co-occur equally, with the restriction that on all trials with an unequal ratio of red and blue boxes, the larger reward is associated with the least likely outcome, thus capturing the conflict inherent in risk-taking situations. Subjects with ECF impairment take more risks in pursuit of a large reward and tolerate a higher probability of a large loss; this tendency often describes inmates who engage in impulsive offenses. Performance scores generated by this task include percentage of choice of the most likely outcome and mean deliberation times as a function of the balance of rewards.

The **Logan Stop-Signal Task** measures impulsivity and distractibility (Solanto et al., 2001). The task begins with the computer displaying an asterisk or a circle, alternatively. When the asterisk is displayed, subjects are instructed to quickly press the left mouse button. When the circle is displayed, they are instructed to quickly press the right mouse button. Incorrect responses elicit a beep and the subject must correct the response. This slows their reaction time recording. If they respond slowly, the screen reads “too slow”. If they respond before the stimulus is presented, the screen reads “too fast”. Next, they are to press the corresponding mouse buttons for the asterisk and the circle, but if a tone sounds after the stimulus is

presented, they must alter their response and quickly press the middle mouse button. If they press the right or left button before the tone is presented, they receive a notice that they responded incorrectly and the task continues. The rapidity with which the tone is presented changes throughout the task and is also affected by how fast their initial reaction time was, as recorded in the first portion. This task requires deep concentration, impulse control, and timing ability. This task takes approximately 15 minutes.

The **Stroop Interference Task** uses previously learned information to assess the 3 attributes of executive frontal lobe function: complexity, a “nonroutine” nature, and the novel use of old information. Patients with frontal lobe damage are typically influenced by stereotypical thinking, which would interfere with the ability to produce the atypical responses required on the Stroop (Luria, 1980; Mesulam, 1986), and often experience difficulty with mental flexibility (Stuss & Benson, 1986). Studies suggest that the anterior cingulate (believed to be involved in aggression) is involved in performance on the Stroop (Pardo et al., 1990; Bench et al., 1993). The Stroop includes presentation of 3 individual forms (Reeves et al., 1991). The first displays the words “red,” “green,” and “blue” as black letters on a white background. The subject reads the words as quickly and accurately as possible. The second form presents 4 X’s in 3 randomly repeating colors, and the subject must quickly say the color aloud that corresponds to the color of the X’s. The third form displays the words “red,” “green,” and “blue” in colors that do not match the meaning of the word. This is the interference task and requires the subject to say the color of the letters as opposed to the color indicated by the word. The measures for this task are the Word Score, Color Score, Predicted Color-Word Score, and Interference Score. Each score reflects the total number of responses completed in 45 seconds for each form. This task is well documented as a reliable test of prefrontal function, with high discriminant ability (Audenaert et al., 2001; Baxter & Liddle, 1998; Nathan et al., 2001).

Emotional Perception Task

Research suggests that emotion-processing deficits lead to a distorted perception of social cues that has been associated with aggressive behavior (Crick & Dodge, 1996; Dodge, 1980). PFC impairment reduces inhibition of emotional behaviors that may be generated from these distorted perceptions. Thus, measurement of emotion perception is critical. An **Emotional Expression Task** using a facial expression technique was used due to its high level of validity and reliability and its consistent activation of the amygdala, a limbic structure involved in emotion and aggression (Gorno-Tempini et al., 2001; Stevens et al., 2001). Inmates viewed faces in various emotional configurations and indicated what emotion they believed was being expressed. Computer-generated images of faces were created based on universal features of facial affect (Ekman & Friesen, 1975; see Morris et al., 1998, p. 49) and depicted happy, fearful, threat, sad, surprise, disgust/contempt, and angry expressions. For each emotional category and each face, a range of 6 intensity levels was produced by computer graphical manipulation, which is more realistic and engaging than photos or still copies. The 25%, 50%, and 75% faces were interpolations created using computer morphing procedures (Perrett et al., 1994) to shift the shape of the 0% (neutral) face toward the emotion expression prototype (100%). Explicit recognition, categorization, and intensity discrimination (on a 7-point scale) of the emotional expression was required. In a separate test, images were paired and subjects were asked to select the more intense expression. Expressions that were named quickly, with few words, and with high accuracy were designated as high perceptual ability, while those that involved lengthier reaction times using more words, lesser intersubject agreement, and low accuracy were rated as low perceptual ability. Scores were related to performance on ECF tasks to assess their relationship and relative contributions to treatment outcomes.

Stress Task

The significant effect of public speaking on emotional and physiological stress responses has been well demonstrated (see Rohrman et al., 1999). Inmates were instructed to make a 10-minute persuasive speech providing justification to an ostensible parole board for an early release. They were told that the research assistant would judge the speech according to how compelling and effective it was, and in terms of its formal aspects and content. Cortisol levels were measured noninvasively in saliva—the most valid assessment of cortisol responsivity (Yao et al., 1998). Salivary cortisol is not affected by rate of saliva production or cigarette smoking. Saliva (2ml) was collected before, during, and after the speech by placing a cotton swab inside the cheek for 3 minutes. Cortisol tends to rise about 20 minutes after a stressor and then falls precipitously, thus we were able to evaluate the curve to determine whether inmates who performed better in treatment showed a more effective rise and fall in cortisol than inmates who did poorly. The task was conducted in the afternoon for all inmates when cortisol is at a stable level. This test assessed the inmate’s stress response to emotional stimuli, which is essential when measuring ability to process and regulate emotions.

In order to evaluate the inmates’ present emotional state, which may have an effect on their stress response, the Symptom Checklist 90 (SCL-90) was administered immediately before this task (Derogatis et al., 1973). This instrument evaluates a broad range of psychological problems and current symptoms of psychopathology using nine symptom scales plus a global index of severity. In the present study we used 6 of those scales which were most relevant. The instrument is useful in measuring patient progress or treatment outcomes, including evaluation of patients at intake as a method for symptom screening; measuring patient progress during and after treatment to monitor change; outcome measurement for treatment programs through aggregated patient information; and clinical trials to help measure the changes in symptoms such as depression and anxiety.

Table 2. Baseline Test Battery and Measures

| Variables (Predictors & Mediators) | Measurement Instruments |
|---|---|
| General neuropsychological function | Multidimensional Aptitude Battery |
| Demographics, prior drug use, etc. | Background Inventory (adopted from the ASI) |
| Psychopathy | Psychopathy Checklist – Screening Version |
| Aggression Type | The Reactive-Proactive Questionnaire |
| Childhood behavioral history | Disruptive Behavior Disorders Checklist |
| Lifetime stress | Early Trauma Inventory |
| Past Failures/Successes | Success Inventory |
| Executive cognitive performance | Cambridge Decision Making Task Logan Stop-Change Task Stroop Color-Word Interference Task |
| Emotional perception | Facial Expression Task |
| Emotional regulation | Speech Task with Cortisol Assessment SCL-90 |

Treatment Program Participation

After baseline assessments, inmates began their participation in the facilities’ CBT-type program. CBT is the most widespread and rapidly growing treatment program in U.S.

correctional institutions to reduce violence, drug abuse, sexual offending, and other behavioral disorders common in inmates (Holbrook, 1997; Nicholaichuk et al., 2000). CBT was the focus of this research to identify underlying differences between responders and nonresponders to this popular correctional program. Findings from this research suggest that some inmates with deficits in functions being measured were less likely to progress in treatment and more likely to drop out early and commit infractions during treatment. It is possible that these inmates will be more effectively impacted by targeted, neurocognitive-based treatment regimens suitable for administration within an institution to reduce violence among prison inmates.

CBT is designed to help inmates develop impulse control, manage anger, and learn new behavioral responses to real-life situations. The underlying assumption is that learning processes play an important role in the development and continuation of antisocial behavior and can be used to help individuals enhance their ability to exert self-control. CBT is designed to help patients *recognize* situations in which they are likely to become agitated or aggressive, *avoid* these situations when appropriate, and *cope* more effectively with a range of problems and behaviors associated with aggression. CBT is a short-term, relatively brief approach well suited to the resource capabilities of most prisons. CBT has been extensively evaluated in clinical trials and has empirical support as treatment for violence and related behavior.

In the three facilities where this study was conducted, the Maryland correctional system offers a series of 3 groups that meet for 90 minutes twice a week, totaling 50 sessions. The first group is called entry point and involves curricula on "Thinking, Deciding, Changing." Entry point blends a decision making and cognitive restructuring modality (a self-reflective process to search for triggers of misconduct) into a cognitive-behavioral modality (an external, skill-building process) for self change. It is asserted that "high risk" inmates with multiple incarcerations, a history of violence, poor institutional adjustment and/or very impulsive behavior are most likely to benefit from this curriculum due to its focus on skills that tend to be particularly in deficit in this subgroup. The second group is called "Communication" and is designed to orient members to the importance of effective communication in one's everyday life and encourage the experience of group cohesion and ownership by enabling members to create their own goals and rules through the use of dyad interviews. The third group is called "Relationships" and is designed for clients who have successfully completed the first two groups. The focus is on the examination of the way elements in the environment are dealt with or related to, including persons, places and things. These latter two groups are based on cognitive-behavioral principles.

Inmates are referred into the voluntary program by correctional case managers, mental health professionals, or themselves. To avoid the transfer of inmates participating in this study to different facilities during programming, they consented to be held in the same facility to ensure treatment continuity. The sole requirements for retention in the programs are that inmates do nothing to undermine the group process and remain infraction free. Those who commit infractions while in the program are considered unfavorable responders. Inmates who complete the program received a certificate but no other compensation or reward. The intake interview focused on the inmate's goals for program participation.

Processing of curriculum materials from CBT relies on the ability of participants to (a) be cognizant of and responsive to potential negative consequences of their behavior, (b) inhibit inappropriate behavioral responses, and (c) understand and act on the benefits of deliberate and cautious decision making. Participants with deficiencies in neuropsychological and emotional regulatory skills are not as likely to benefit from programs that do not first target these deficits. Although correctional treatment programs are considered effective for particular

inmates, we expected that the subgroup that does not respond favorably to treatment is unable to process the materials due to skill deficiencies. It was further expected that “nonresponders” would constitute that subgroup of inmates who repeatedly engaged in misconduct (as measured in institutional infractions), posing the greatest danger within and outside the prison environment. These findings (see next chapter) suggest that a targeted cognitive rehabilitation strategy, not the standard approaches used routinely in prisons, would potentially remediate these malleable functions, thereby reducing institutional misconduct.

Follow Up Testing to Evaluate Treatment Outcomes

Immediately after inmates completed the CBT program, treatment performance was evaluated by staff and the inmate. Institutional records were reviewed to assess level of responsiveness to the program, as measured by performance indicators, program completion, and the commission of institutional infractions. Change in risky behaviors was assessed by administering the CDMT, Reaction to Provocation scale, and the interactive virtual reality vignettes (see below) both during baseline and following treatment. Adjustments in the analyses were made for age but other background variables were not influential.

Treatment Performance Indicators

There is much concern regarding the use of self-report to assess correctional treatment efficacy, particularly among violent offenders (Novaco, 1994; Bellemare & McKay, 1992; Hughes, 1993). Thus, this study used primarily behavioral performance measures, taken at baseline and post-intervention, which do not rely solely on self-reports. Evaluations from Social Workers were also collected. Thus, measures of differential treatment efficacy used in this study demonstrate the extent to which participants were able to transfer knowledge gained in the program to change in behavior.

Treatment performance was evaluated by the Social Workers using the Treatment Responsivity and Treatment Gain scales developed by Ralph Serin (Director of Programs Research, Correctional Service of Canada). (This instrument is being adopted by the Wisconsin DOC for evaluation of their cognitive program.) These scales were designed to assess CBT performance (Kennedy & Serin, 1997, 1999; Serin, 1998; Serin, in press) by a variety of staff and across a range of programs. To ensure reliability, scoring is straightforward. Each domain is represented by a description, questions to be incorporated into therapists' semistructured interview formats, and a 4-point rating scale with behavioral examples for each level (see Appendix I). This evaluation was conducted after each of the 3 CBT groups.

The Novaco **Reaction to Provocation** (RP) inventory was given at baseline and again after each of the three treatment groups. There are two parts, the first assessing cognitive, arousal and behavioral domains and the second assessing impulsive reaction, verbal aggression, physical confrontation and indirect expression. This instrument is sensitive to behavioral change particularly in response to an intervention.

The **CDMT** was readministered after completion of the treatment program to determine whether executive cognitive decision making behaviors changed and in which subgroups.

Decision-making vignettes, using RTI-developed virtual reality assessment architecture, was employed to measure pre- and post-intervention decision-making and problem-solving ability. Vignettes consist of short, focused interactions to examine dialog, behaviors, and decisions made in a real-world context. Each vignette invokes a specific

cognitive function consistent with relevant ECF dimensions measured in the task battery: risky decision making, impulsivity, and sensitivity to penalties. They require processing of information, judgment, and selection of appropriate and effective decisions. One vignette allows for choices that involve risks where a harmful consequence is possible and includes 2 virtual characters: a correctional officer and a peer simulate the common situation whereby peers are influential in reactions to officers. A second vignette allows for choices *after* a penalty has been dispensed to determine whether inmates learned to shift strategies. A third vignette measures whether inmates choose a decision *before* adequate information has been provided, to reflect impulsive decision making. Such instructional designs differentiate between “knowledge” and “skills” that may be acquired during exposure to the experimental stimulus (Hubal & Helms, 1998); that is, the vignettes will assess inmates’ situation-specific behavior rather than merely test their understanding of risk, impulsiveness, or sensitivity to penalties. Analysis of decisions made in each vignette take into consideration actual behavior of the inmate, comments by the inmate, how the inmate responded to the virtual character, whether or not the inmate tailored responses to the situation, outcome of the situation, and degree of assistance needed to complete the scenario. Stimuli were presented in a highly uniform fashion and tracked a variety of response characteristics, such as appropriateness of the response, latency time from exposure to response, and pathways taken. Decision-making responses in these scenarios were related to baseline ECF and emotional measures and used to gauge changes in risky and impulsive decision making induced by the CBT program. Inmates who did not respond favorably to the treatment program are expected to show lower baseline levels of ECF and emotional perception and regulation and not demonstrate change in decision-making responses. See results section for findings.

Measures of **institutional misconduct** were gleaned from inmate files. Although many types of misconduct were considered (e.g., infractions repeatedly committed, noncompliance, defiance of authority), the following offenses will be classified as “serious” to assess degree of aggressive and antisocial behavior: homicide, attempted homicide, aggravated assault, possession of a dangerous weapon, fighting, threatening bodily harm, simple assault, setting a fire, taking hostages, drug use or possession, or 3 or more segregation episodes due to aggressive behavior. Inmates generally receive segregation time for these offenses and thus were placed in the “noncompletion” category.

Noncompletion of the program due to disinterest, commission of an infraction, disruption to the group, or a related reason will be considered a treatment failure. Noncompletion due to obtaining a job, mandatory transfer, or other reason unrelated to noncompliance will be excluded in analyses.

Table 2. Baseline Test Battery and Measures

| Outcome Variables (pre and post) | Measurement Instruments |
|--|----------------------------------|
| Lifetime stress | Early Trauma Inventory |
| Change in behavioral control | Novaco: Reactions to Provocation |
| Experiences that could affect treatment response | Events Checklist |
| High risk behaviors | Virtual Reality Vignettes |
| Executive decision making | Cambridge Decision Making Task |
| Institutional Behaviors | OBSCIS Data on infractions |
| Treatment Response/Progress | Gain Scale from Social Workers |

CHAPTER 3: CONDITIONS THAT PREDICTED TREATMENT OUTCOMES

Each measure of neuropsychological and emotional functioning was examined in relation to measured treatment outcomes, including treatment readiness, gain, responsiveness, completion, infractions, and segregations. For most variables, the relevant measure is one of number correct or incorrect in performing the task. Reaction time (RT) is also measured and it should be noted that RT during test administration can be interpreted differently for various tasks and with respect to specific responses. For example, a shorter reaction time with a greater number of risky decisions selected may indicate impulsivity or insensitivity to consequences. While a longer reaction time on the Stroop task or the FEEST may indicate cognitive inefficiency. Each one is discussed and interpreted below.

Hypothesis 1: Neuropsychological and Emotional Functions will Co-Occur

As a test of the first hypothesis, to determine whether neuropsychological deficits tended to co-occur in inmates or whether they were distinctive and relatively unrelated, central variables from each neuropsychological task were included in a correlation matrix. Not all of these variables were significantly related to one another, suggesting that a smaller level of co-occurrence existed between these deficits in this population than expected. In short, impulsivity (SCT) was related to cognitive interference and shorter reaction time (Stroop) and the inability to accurately assess emotion in facial expressions (FEEST). Risky decision making (CDMT) was also related to an inability to assess emotion in facial expressions and lengthier reaction times while making risky decisions was related to a higher average baseline cortisol level and greater cognitive interference (Stroop). Interestingly, impulsivity and risky decision making were not significantly correlated, suggesting they are separable constructs. Also noteworthy, cortisol levels were not related to most tasks with the exception that higher baseline cortisol is related to lengthier reaction times during decision making which may be an indication that higher levels of anxiety may lead to the need for greater deliberation while making decisions.

Hypothesis 2a: Neuropsychological and Emotional Function will Predict Treatment Outcomes.

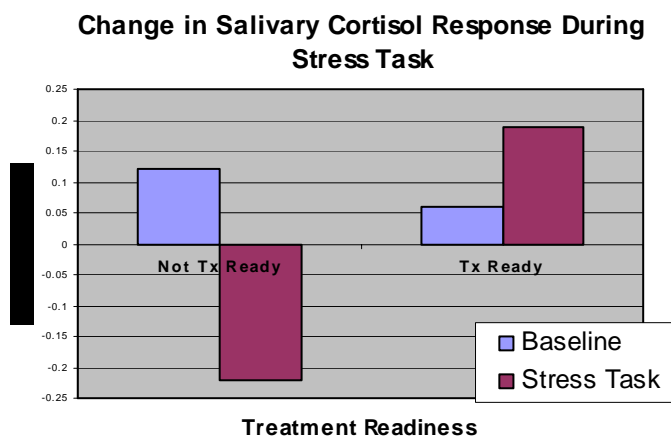
The first portion of the second hypothesis involved analyses to determine whether neuropsychological functioning predicted various treatment outcomes. Other background measures were also assessed to determine whether neuropsychological functions or background measures had the most explanatory power.

Treatment Readiness

The Treatment Readiness scale is self administered; thus, inmates complete this test by indicating how treatment ready they view themselves. Those who misperceived disgust, anger and then all facial expressions combined showed lower treatment readiness. Also, indicators of risky decision making were related to treatment readiness; i.e., choosing options associated with higher potential rewards but greater chance of losing a larger amount of points was associated with lower readiness scores. It is noteworthy that no background measures (e.g., months in prison, education, drug use history, IQ, etc.) significantly discriminated between groups.

Also, change in cortisol response from baseline to the stress task was significantly predictive of treatment readiness, controlling for both age and body mass index (BMI; important to analyses of cortisol data). The figure below shows that those with higher self-reported levels

of treatment readiness had a greater cortisol response to an acute stressor than those with low treatment readiness, who showed a relative decrease in cortisol from baseline. Based on the discussion in chapter 1, we may interpret this to suggest that those with lower perceptions of treatment readiness may either have experienced more lifetime adversity, leading to a lower stress response, or that they may be constitutionally less responsive to stressful situations.



Treatment Gain

For the treatment gain scale, which reflects evaluations by social workers, the results indicate that several neuropsychological constructs predict treatment outcome. Higher levels of both impulsivity and risk decision making predicted low treatment gain. For both measures, the high treatment gain group performed better and with longer reaction times, suggesting greater deliberation times. For the facial expression task, however, the high gain group misperceived the emotional expression of surprise more often than the low group, which was unexpected. On the Stroop, the measure of cognitive flexibility and error monitoring, the interference score did not discriminate between groups but reaction times were significantly longer for the low gain group suggesting greater cognitive inefficiency. No differences were found in cortisol responses to the stress task.

With respect to treatment readiness, none of the background variables were predictive. But for treatment gain, the number of days in the last 30 that the inmate reported experiencing psychological problems was related to less gain, and a history of physical abuse specifically predicted less gain.

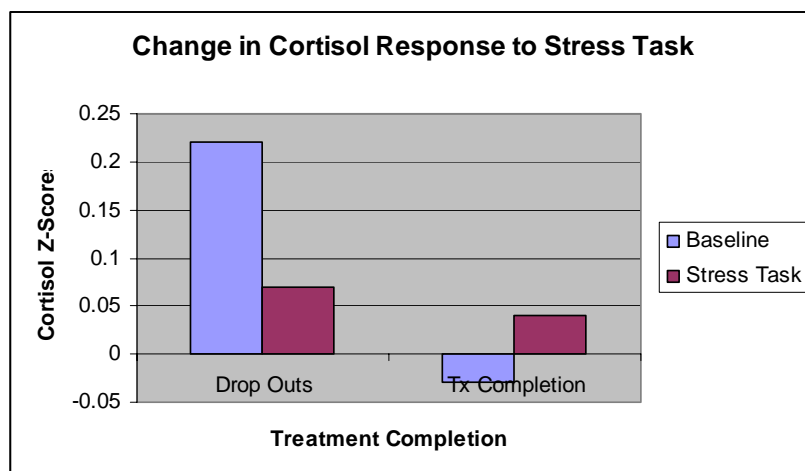
Treatment Responsivity

Treatment responsivity is also evaluated by social workers for each inmate who completed the groups. Those with lower scores on the treatment responsivity scale differed significantly from the high group, having a greater history of physical abuse and number of days in the last 30 that they experienced psychological problems. No other group differences were found in background measures or cortisol responses. With respect to neuropsychological function, the poor treatment responsivity group performed significantly worse on the impulsivity and risky decision making tasks and had shorter reaction times during both tasks, indicative of impulsivity or insensitivity to penalty or risk. Conversely, the low group had longer reaction times during two sets of the Stroop task, again suggesting cognitive inefficiency.

Treatment Completion

For inmates who completed at least the initial treatment group, and excluding those who began treatment but dropped out for legitimate reasons (e.g., transfer, work, etc.), a lesser history of physical abuse and psychological problems was found. No other background measures significantly discriminated between groups. On neuropsychological measures, completers showed significantly less impulsivity and longer reaction times in response to risky trials on the CDMT. On the other hand, in response to all three trials on the Stroop, noncompleters had significantly longer reaction times, again indicating cognitive inefficiency.

Treatment completers also showed a somewhat (marginally significant) different pattern of cortisol responses to the stress task. Controlling for both age and body mass index, z-scores of cortisol levels were subjected to an ANCOVA repeated measures analysis. Inmates who did not drop out of treatment showed a moderate relative increase in cortisol levels from baseline to the acutely stressful situation. Inmates who dropped treatment for “negative” reasons showed the opposite pattern, with cortisol dropping precipitously from baseline.



Institutional Infractions

Institutional infractions constituted another type of outcome measure, reflective of misconduct within the institution during treatment. The number of infractions prior to treatment was subtracted from the number of infractions committed during treatment to produce a score indicating the extent to which behavior changed in response to treatment. Inmates showing a reduction in infractions were less likely to have a history of emotional or sexual abuse. They also have spent fewer months in prison throughout their lives and reported fewer psychological problems in the last 30 days. There was also a tendency for a greater reduction in infractions to be related fewer high risk choices and a greater number of correct responses on the facial expression task. And finally, change in infraction numbers was related to greater change in cortisol response to an acute stressor. Thus, overall, those inmates who showed improvement in behavior in response to treatment performed better in the neuropsychological tasks, had a more robust stress response, and had less adversity in both the recent and distant past.

Segregations

Segregations resulting from institutional infractions constituted another type of outcome measure, reflective of institutional behavior. The number of segregations prior to treatment was

subtracted from the number of segregations committed during treatment to produce a score indicating the extent to which behavior changed in response to treatment. Similar to the more overarching measure of infractions, Inmates with a reduction in segregations were less likely to have a history of emotional or sexual abuse. They also have spent fewer months in prison throughout their lives and report fewer psychological problems in the last 30 days. There was a tendency for a greater reduction in segregations to be related fewer high risk choices on the CDMT and a greater number of correct responses on the happiness expression on the FEEST. And finally, change in segregation numbers was related to greater change in cortisol response to an acute stressor.

Virtual Reality: Risk Taking Behavior

The virtual reality data did not show adequate variation for analyses as an outcome measure. This appeared to be due to the lack of familiarity with and comfort of inmates in using interactive computer techniques, as well as the possibility that there may have been fear that their recorded responses to risk taking scenarios may become accessible to prison staff. Thus, this particular technique is not recommended for assessment of behavioral change in inmates.

Hypothesis 2b: Change in neuropsychological function will predict response to treatment.

In order to test this hypothesis, the executive Risky Decision Making Task (CDMT) was administered twice; once at baseline and once again following treatment. Inmates who dropped out of treatment early received the CDMT on the same timeline as those who completed. Thus, inmates were asked to complete the CDMT after the treatment period, despite variable participation times to determine whether change in executive decision making was incurred in response to treatment. Differences in the magnitude of change were expected between those who responded well to treatment versus those who did poorly or dropped out. Outcome measures for these analyses included treatment responsivity, gain, completion, infractions and segregations.

It is noteworthy that a large proportion of inmates who did not complete treatment for negative reasons did not complete the second CDMT; thus, those with low treatment responsivity scores were so much less likely to have received the post-CDMT that several of the analyses could not be conducted. This both validates our measure of treatment responsivity and complicates our test of this hypothesis. Using a mean split was not possible, so instead correlational analyses were conducted. Results are reported below for those analyses with much smaller sample sizes than the analyses reported above and includes those who completed at least the first treatment group (df=72).

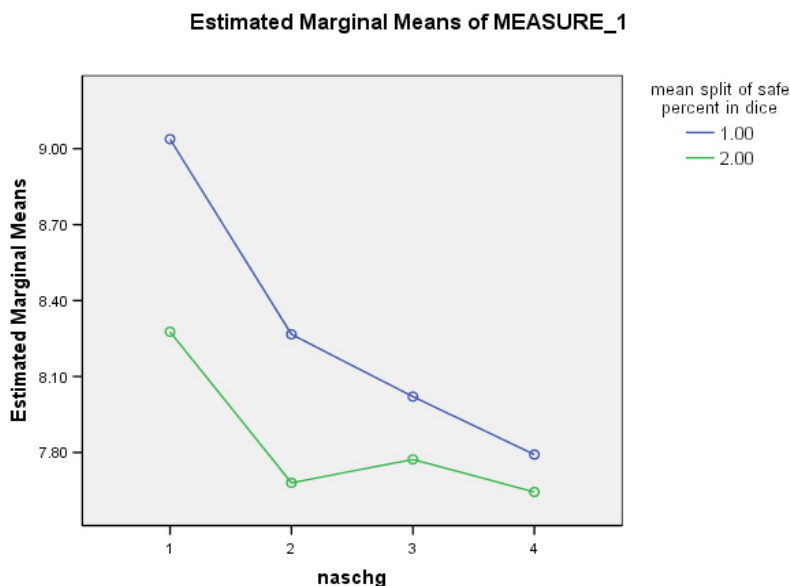
Change in the extent to which inmates selected the riskiest choice was significantly related to treatment readiness and change in risky choices overall was marginally related to readiness. In both cases, treatment readiness was related to the selection of a greater percentage of risky choices from before to after treatment. Treatment gain was significantly related to change in reaction time when selecting risky choices with shorter RTs in the second administration than the first. Gain was also marginally related to change in risky choices overall, suggesting that fewer risky choices were related to greater gain. Treatment responsivity was significantly related to change in reaction time and marginally to change in risky choices overall, showing the same directionality as with the Gain scale. These results are interesting in the context of the outcome measures: treatment readiness is self evaluated prior to treatment while responsivity and gain are evaluated by social workers during and after treatment. Thus, those

with perceptions of high readiness actually exhibited more risky decision making in response to treatment while those who responded more favorably to treatment according to social workers showed significantly greater improvement in decision making.

Change in neither institutional infractions nor segregations were related to change in the CDMT measures. Also, the virtual reality scenarios were also presented at baseline and post-treatment, however there was not sufficient variability to determine whether change in this measure occurred.

The Reaction to Provocation (RP) inventory was also administered at baseline and after each treatment group to assess change in aggressive behaviors and attitudes. Treatment responsivity scores were not related to RP scores at baseline or after the first treatment group. RP scores became significantly related to treatment responsivity, however, after the second and third groups suggesting that those who responded well to treatment showed a significant trend toward less aggressive behavior over time. Again, it is important to note that as treatment progressed, fewer inmates were retained and a greater number dropped out of the study; thus, the latter correlations include fewer numbers and specifically those who performed better in treatment. There were no significant relations between change in RP and treatment readiness or gain scales.

More relevant to the present study, RP scores were contrasted between high and low cognitive functions including only one central measure from each task. A significant difference was found between high and low scorers on the risky decision making measure of safe choices; those who selected fewer safe choices showed a steeper decline in aggressive behaviors than those who selected greater safe choices. This may suggest that participating in treatment may be more beneficial to those with poor (i.e., risky) decision making than those with better decision making ability.



RP scores were then broken into subscales, including the following “provocation” domains: cognitive, arousal, behavioral, and anger relating to specific types of provocations. Two administrations after the first and second groups were included in a repeated measures ANCOVA using a mean split for each primary measure on the neuropsychological tasks as well

as a mean split for the measure of stressful experiences during treatment. Those with higher levels of self reported stressful experiences had higher baseline levels of arousal and then a larger decline in arousal after the second treatment group and a greater reduction in angry reactions to specific provocations. Similarly, inmates who selected fewer “safe” choices on the risky decision making task showed a higher baseline and greater decline in arousal after the first treatment group than those selecting fewer safe choices.

Hypothesis 3. Neuropsychological functions will be associated with psychopathy, a history of aggressive crimes against persons and an aggressive personality style.

Inmates scoring high on the psychopathy measure performed significantly worse on several background and neuropsychological measures than inmates with lower scores. High scorers showed greater impulsivity (SCT). They also had a greater number of extra presses on the CDMT and a shorter reaction time; these particular scores on this task are not direct measures of risky decision making but may also more appropriately reflect impulsivity. High scorers also were less accurate in their appraisals of the expression disgust and overall on the FEEST they responded with significantly fewer correct perceptions. And finally, there was a marginal finding for a longer reaction time on the Stroop during the incongruent trial; given that groups did not differ in terms of number correct, this slowness may suggest greater cognitive inefficiency. No background measures distinguished between high and low scorers, however, high scorers had substantially higher scores on both proactive and reactive aggression, as well as number of segregations and infractions within the institution, as expected.

There was also a tendency for psychopaths to show a decrease in cortisol response to a stressor while the nonpsychopaths showed an increase, controlling for age and BMI, similar to findings for treatment readiness.

A few of the neuropsychological measures were significantly related to self-reported history of either proactive or reactive aggression. The greater the reactive aggression reported, the fewer the safe choices made during the risky decision making task. Also, the ability to discern the facial expression of disgust was relatively impaired in those with higher level of reactive aggression. The proactive aggression measure was also related to misperceptions of disgust. Higher levels of proactive aggression were associated with two measures on the impulsivity task, but in the opposite direction of what was expected. There were no significant relationships with the Stroop.

With respect to a history of aggressive crimes, there was an insufficient number of inmates who committed only property crimes in these three prisons to permit an analysis of ways in which crime types may be related to neuropsychological function. The overwhelming majority of those who did not commit a crime against persons were charged/convicted of drug crimes, which is not an adequate comparison group. Thus, an analysis was undertaken to determine whether self reported history of “violent behavior” (none vs any) was related to neuropsychological function. Those with such a history performed somewhat worse on the Stroop, showing greater cognitive interference, fewer safe choices on the CDMT, and greater impulsivity on the SCT. The implications of this finding are that inmates with a history of violent behavior may present with deficits that need to be addressed in order for treatment to be effective. And, in fact, those that reported violent behavior tended to score lower on treatment gain and responsivity ($p = .06$ and $.07$ respectively).

H4. Inmates with ECF/emotional deficits who have either high psychopathy scores or a history of substance abuse will respond less favorably to treatment.

Those with high scores on the LPS showed poorer responsivity to treatment. This relationship remained significant after controlling for central ECF measures from each task, suggesting that psychopathy alone, with or with cognitive deficits, interferes with treatment effects.

Unexpectedly, high scorers on psychopathy showed a tendency toward greater improvement in decision making, irrespective of treatment response, selecting more safe choices after participating in treatment than before. Low psychopathy scorers did not significantly change in their decision making responses from baseline to post-treatment.

Similar, although even more pronounced, results were found for another CDMT measure – percentage of selections of the highest risk choice. Again, like the results for a history of violence, those with the highest levels of psychopathy appeared to benefit most from treatment in terms of decision making even though they began treatment with much higher levels of risk taking. A caveat, however, is below.

Consistent with these findings, the repeated Reaction to Provocation inventory also showed change contingent upon psychopathy scores. Specifically, although high psychopathy scorers had a greater tendency toward aggressive reactions to provocation at baseline, both high and low scorers reported less reaction to provocation as treatment progressed. Importantly, however, higher psychopathy scorers showed greater improvement than lower scorers. Also, although psychopathy and baseline RP scores are strongly related, the degree of correlation suggests that these concepts are separable. These results only apply to those inmates who remain in treatment and the study long enough to provide data.

In order to further dissect these unexpected findings, the effects of the interaction between ECF measures and psychopathy (using mean splits for both constructs) on treatment outcomes were examined. The only significant finding was the interaction between perceptions of emotional expressions (FEEST) on number of infractions. Inmates with high psychopathy scores and lower accuracy in attributing emotions to facial expressions had a greater number of infractions than the other three groups (i.e., low psychopathy – low accuracy; low psychopathy – high accuracy; high psychopathy – high accuracy).

Similar analyses were conducted for the effects of prior drug use on various measures of treatment outcome and to determine whether there was an interactive effect of drug use and ECF on treatment outcome. No significant relationships were revealed, suggesting that neurocognitive function has a greater effect on treatment outcomes than does prior drug use. This finding was surprising, particularly given the impact of drug use on these neurocognitive functions.

Summary Model

In order to identify those factors that best predict treatment responsivity, a linear regression analysis was conducted including both background and ECF measures. The table below shows that age, psychological problems and history of abuse are the only background measures that significantly predict treatment response (all other background variables were included but did not add anything to the model). Of all the ECF variables, the SCT measure of impulsivity most highly predicted outcome.

Best Model Prediction of Treatment Responsivity

| | R | R Square | Adjusted R Square | F Change (df) | Sig |
|--|--------------------|------------|-------------------|---------------|-------|
| MODEL | .426 | .181 | .156 | 7.20 | .0001 |
| Predictors | Unstandard. Coef's | | t | Sig. | |
| | B | Std. Error | | | |
| age of inmate | .15 | .13 | 1.15 | .25 | |
| Stroop: number correct for incongruent portion of task | .198 | .087 | 2.27 | .02 | |
| CDMT: reaction time during highest risk choices | .002 | .001 | 2.90 | .005 | |
| SCT: % correct for distractor trials | 5.13 | 1.64 | 3.13 | .002 | |

Interpretations of these Results

Findings from this research suggest that inmates with deficits in cognitive functions under study, in particular impulsivity, were less likely to progress in this type of CBT treatment program and more likely to drop out early and commit infractions during treatment. It is possible that these inmates will be more effectively impacted by targeted, neurocognitive-based treatment regimens suitable for administration within an institution to reduce violence among prison inmates.

The following items summarize the results of this study:

- Neuropsychological deficits, especially involving impulsivity, significantly predicted treatment response, gain and retention. The type of impulsivity measured in this study is relevant in it reflects an inability to shift responses based on new information presented. Treatment should focus on behavioral self-regulation, attentional focus, consequences of actions, problem solving through language development, and self monitoring, amongst other strategies. Other measures were also significantly related to treatment response, including risky decision making and the ability to accurately perceive emotional expressions in faces. Both of these functions have implications for social competency skills that can influence ultimate outcomes, from aggressive behavior to amenability to treatment;
- History of physical abuse significantly predicted treatment outcomes. Three types of child abuse were assessed: physical, emotional and sexual, and while a history of sexual abuse was moderately related to treatment failure, physical abuse was a much stronger predictor. Treatment approaches that focus on childhood trauma may have a significant impact on stress-related conditions that often develop from adverse childhood experiences;
- Younger inmates fared better in treatment, but months in prison was not predictive. One might interpret this finding to suggest that younger inmates may be more tractable irrespective of how long they have been in prison;
- Self evaluations of treatment response differed from social worker evaluations. This finding is particularly interesting in that it appears that inmates who have an inflated sense of how well they may do in treatment may be at particular risk for negative

outcomes. It is also relevant that an elevated cortisol response to a stressor typified those who evaluated themselves as being highly treatment ready. This finding may reflect a high level of responsivity to social stimulation. The implications of this finding for treatment will be explored in further research;

- IQ was not different between treatment readiness, gain, responsivity or completion groups, suggesting that higher order cognitive functions played a direct role in treatment outcomes. If IQ was related to treatment outcomes, then one might suggest that executive functions are in deficit due to impairments in more basic cognitive functions, as reflected in IQ. As IQ did not play a significant role, we can assume that higher order executive functions are the primary players and not such supportive functions;
- There were no differences between treatment groups on measures of prior drug use. This result was surprising given the ample literature showing that drug users have a significantly worse track record in treatment and can be more recalcitrant. Additional analyses were run to determine whether history of drug use played a more prominent role when viewed in the context of psychopathy or aggression, but it did not. Thus, in this particular population, where the majority of inmates have a history of drug use, it did not play an important role in treatment responses;
- None of the background variables discriminated between treatment groups, including education, duration of total prison time, family history of criminality, mental illness, and drug abuse, aggressive behavior, stressful events that occurred during first treatment group, and attitudes about treatment. This finding was also unexpected, yet important in that it highlights the significant role of neuropsychological functioning over and above other inmate characteristics;
- The extent to which psychological problems were experienced in the past 30 days distinguished between low and high treatment responsivity groups. Those who reported a greater number of problems in the past month did not perform as well in treatment as those with fewer problems. It is critical that treatment providers take into account psychological distress as possible concomitant factors that can disengage inmates from treatment and cause them to be less amenable to the program's demands.

These findings suggest that certain individual characteristics distinguish between offenders positively affected by correctional CBT-based interventions relative to those least affected and may be informative with respect to what treatment components are needed to design an effective intervention strategy (e.g., intensive cognitive rehabilitation). A targeted cognitive rehabilitation approach may potentially remediate these malleable functions, thereby improving overall treatment outcomes and potentially reducing institutional misconduct. In a variety of settings, evidence is mounting to implicate dysfunction of the thinking process, emotional perceptions, and regulation of emotions in offenders who do not respond to conventional treatments. The present study is consistent with these findings, suggesting that relative deficits in ECF and emotional regulation may play a significant role in treatment outcomes. Because such deficits are malleable, these inmates may respond favorably to *targeted* treatment approaches. Incorporation of this knowledge into criminal justice policies and practices could alter their course substantially to dramatically improve the ability to assess, detect, and treat offenders who are otherwise considered intractable.

This study also has potential to inform the development of assessment tools that can be readily used within both correctional and clinical settings to identify offenders who are unlikely to

respond to present treatment approaches and to isolate deficits that are in need of remediation. The overriding goal is to provide either treatment readiness programs for these inmates that target underlying deficits or to design or adapt new treatments for this more challenging population of offenders. Because the subgroup of offenders that does not respond to conventional treatments often possess underlying individual vulnerabilities and adverse social conditions that compound their problems and are particularly at risk for persistent serious criminality and substance abuse, this subgroup requires more intensive and customized approaches. Accordingly, offenders will be better equipped to maintain control over their own behavior rather than requiring severe methods of external restraint that are terminated upon release. Consistent findings indicate that far fewer crimes are committed when individuals are actively in treatment (see Fishbein, 1991; Fishbein and Pease, 1996). Similarly, in the present study, those inmates who remained in treatment longer showed fewer behavioral maladjustments. Accordingly, development of a sensitive and specific screening test to predict recidivism, institutional misconduct, and/or treatment outcomes would constitute an important advance for treatment planning.

CHAPTER 4: TREATMENT APPROACHES

This is the first study to assess neuropsychological functions in the context of a correctional treatment intervention for inmates. Several studies have shown that neuropsychological function plays a role in treatment outcomes for related populations. Higher levels of functioning in the form of better executive cognitive abilities has been associated with better treatment outcomes in offenders (e.g., less recidivism, reduced sexual offending) and in substance abusers (e.g., lower relapse rates, more attendance in aftercare) (Bauer, 1997; Blume et al., 1999; Self, 1998; Smith & McCrady, 1991; Winterer et al., 1998). For example, measures of prefrontal cognitive functions are reported to predict relapse to substance abuse far better than clinical or behavioral measures (Bauer, 2001). ECFs in particular appear to act as mediators of treatment outcome. For example, children with concentration problems did not respond as favorably to a school-based intervention for delinquency as those without such problems (Rebok et al., 1996). Early signs of aggressive behavior played a role in moderating intervention outcomes including drug use (Kellam & Anthony, 1998; Rebok et al., 1996). Early adolescent drug use is believed to trigger developmental delays in ECF, exacerbating resistance to interventions (Scheier & Botvin, 1995). In the present study focusing specifically on inmates in a prison-based treatment program, poor neuropsychological function also predicted responses and outcomes. And in addition, emotional regulation for the first time was evaluated in such a study and it was also found to play a significant role in treatment responses.

From a practical perspective, the knowledge that an intervention can not only produce behavioral change but also measurable change in brain function suggests that these conditions can be altered and, thus, improved. Evidence from clinical studies of head injury, learning disability, and cognitive disorders suggests that ECF and related behaviors are amenable to appropriate treatments (Hermann & Parente, 1996; Manchester et al., 1997; Rothwell et al., 1999; Wilson, 1997). Consistent with findings regarding the role of cognitive and emotional functions in antisocial behavior, interventions with a cognitive therapy component reportedly produce the most effective results (Bell et al., 1998; Crits-Cristoph et al., 1999; Maude-Griffin et al., 1998; Lochman, 1992). Similarly, programs that appear to be most effective with behavioral disorders related to ECF deficits are those that focus on improving or restoring cognitive ability. With a targeted intervention, as underlying problems begin to improve, so does the ability to regulate behavior and emotions. For example, individuals who exhibit disruptive behaviors due to head injury do well in cognitive neurorehabilitation programs that focus on problems with impulsivity (Stuss et al., 1999). Several effective cognition-based treatments have been developed to prevent behavioral dysregulation, aggression and drug abuse, manage behavioral disorders resulting from head injury or learning disability, and improve self-control (Fishbein, 2000b). Interventions for disruptive inmates that address impaired impulse control, thus, hold particular promise. This conclusion is not only based on studies of individuals with head injury who develop impulsivity and other socially inappropriate behaviors, but also based on the present study that indicates an inability to regulate impulses is at the heart of poor treatment responses.

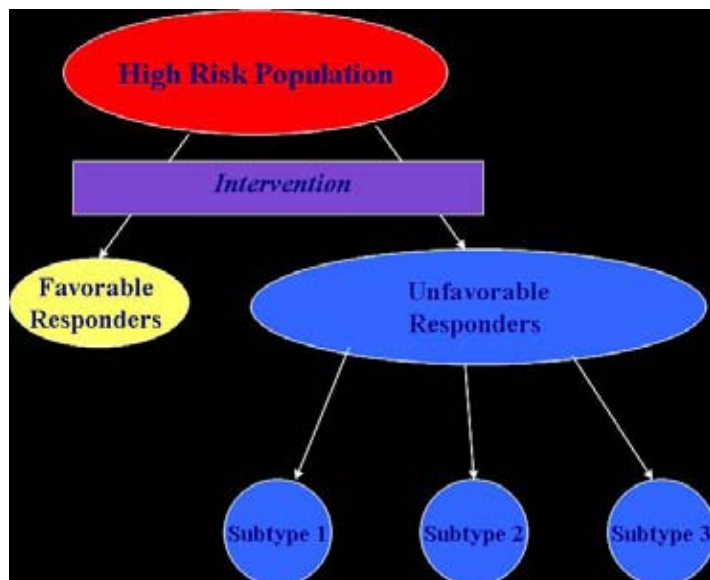
Identifying the ECF and emotional underpinnings of treatment outcomes including institutional misconduct provide valuable insights for developing therapeutic interventions for offenders who tend to be refractory to conventional treatments. Intact ECF and its regulation of emotional tone may, in fact, be a prerequisite for a favorable response to any treatment program, such as cognitive-behavioral therapy, that involves cognitive processing of curriculum materials. Participants with these skill deficiencies are not as likely to benefit from programs that do not first target these deficits. Knowledge about underlying generators should eventually inform those in the field as to the characteristics of offenders least affected by various

interventions and identify components of an effective intervention strategy (e.g., intensive cognitive rehabilitation).

Enhancing the Effectiveness of Treatment

The general public, mental and public health officials, and the criminal justice system are concerned about this significant percentage of individuals who do not respond to current treatment approaches for prison inmates. Unfortunately, the absence of effective *preventive* interventions for young people who are at particularly high risk for eventual criminal offending and severe drug abuse has resulted in a substantial population of criminal offenders, many of whom end up in a correctional institution at some or several points in their life. Within these institutions, those who are considered most unmanageable exhibit repetitively aggressive and impulsive behavior or psychopathy (Rice, 1997). These inmates are resistant or unresponsive to authority and generally impervious to punishment. Many institutions attempt to identify these inmates to segregate them and reserve resources for inmates thought to be more amenable to treatment. This approach does not alter these high-risk behaviors, nor help staff manage the risks these inmates present. It ties up custodial segregation space before the inmate is released and transfers the untreated risks to communities. Fortunately, this study and others suggest that reliable tools can be applied toward the identification and treatment of the distinct characteristics of these recalcitrant inmates to reduce their misconduct in prison and lower their recidivism (Fabiano et al., 1990a, 1990b, 1991).

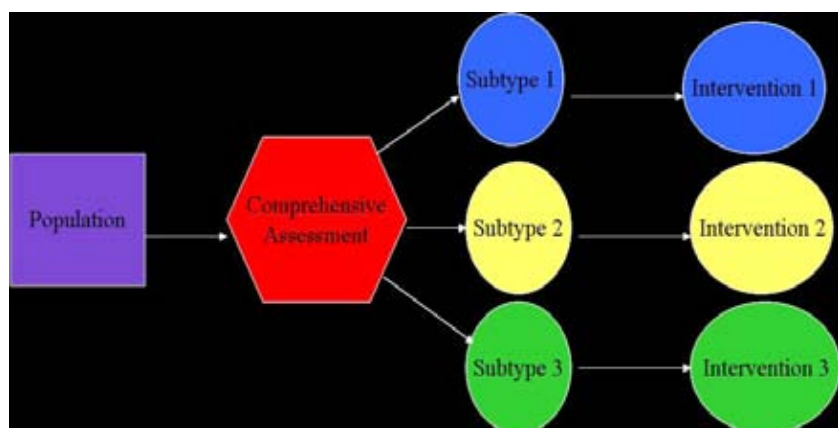
Several bodies of research indicate that a single treatment approach will not likely suit all antisocial inmates. The inability to effectively treat large numbers of these offenders may be due to our lack of knowledge about underlying traits and mechanisms and to differences in their interplay among offender subgroups. Three consistent findings that have yet to be related in this population were considered in the present study and are informative for developing new treatment approaches: (1) impulsive and aggressive offenders have been exposed to a disproportionate amount of adversity, including head trauma, social deprivation, child abuse, and family dysfunction; (2) psychosocial adversity has a direct impact on the development of the brain, particularly the prefrontal cortex (PFC), which is responsible for higher order neuropsychological skills; and (3) aggression, psychopathy, and substance abuse have been associated with neuropsychological and emotional deficits. The links between these findings must be considered in light of evidence that such deficits appear to compromise intervention outcomes and, thus treatment responsiveness.



This figure illustrates that for most high risk populations, particularly involving antisocial behavior and substance abuse, conventional interventions only work for a minority of participants. The majority do not respond favorably. Given that this group is heterogeneous in terms of risk factors and special needs, it is important to subtype them in order to identify an appropriate and effective treatment.

Subtyping the Population on the Basis of Underlying Conditions

Evaluations of a number of interventions provide evidence for their effectiveness in preventing or treating various forms of antisocial behavior. Moreover, those who participate in treatment exhibit much more favorable outcomes than those who do not, particularly in terms of recidivism and relapse. However, as discussed in this manual, in all cases substantial benefits have been experienced by only a subset of participants. Individuals with neuropsychological and emotional deficits may be at greatest risk for repetitive misconduct and antisocial behavior and also least likely to benefit from treatment interventions that do not first include a targeted cognitive component. In order to develop a variety of interventions that are effective in a wider group of inmates, it is critical to identify which subgroups of participants are most likely to benefit from which programs and, importantly, what differentiates those who respond favorably to interventions considered to be effective from those who do not. Research on vulnerability factors suggest that tailored, targeted interventions will be most effective when social and environmental manipulations are “matched” to an individual’s special needs, thereby reinforcing more adaptive and normative behaviors.



Once the population has been subtyped on the basis of a comprehensive assessment of potential underlying mechanisms in their antisocial behavior, more targeted treatment approaches can be provided.

A growing body of research reveals identifiable subgroups of behaviorally disordered inmates with distinctive characteristics and underlying pathologies. For example, those with

psychiatric comorbidity such as depression, anxiety or substance dependence, or psychopathy or another personality disorder likely require differing strategies. They also will differ in terms of the types of neuropsychological deficits they may suffer from. Thus, there is a critical need to identify underlying processes that interfere with the ability of some inmates to respond favorably to treatment intervention curricula. Dysregulation of emotion, behavior, and cognition, particularly involving executive functions, have been implicated in antisocial behavior and drug abuse vulnerability (Aytaclar et al., 1999; Deckel et al., 1995; Fishbein, 2000; Harden and Pihl, 1995; Peterson and Pihl, 1990; Giancola et al., 1996) and propensity to relapse and recidivism (Bauer, 1997; Self, 1998; Winterer et al., 1998). Measures of emotional regulation and perception of social cues have also been related to antisocial behaviors (Finn et al., 1994; Taylor et al., 1999). Thus, ECF and its regulation of emotional responses to processing of social stimuli represent dimensions of brain function that should be considered in the design and assignment of inmates to correctional treatments. The attempt to understand the interactive contribution of biologically based processes and interventions to reduce antisocial behavior problems has been discussed for decades, but only recently have studies such as this one been designed to test these interactions.

Overall Goals and Objectives for Correctional Treatments

The overriding goals for correctional interventions that focus on underlying deficits are:

- Improved self control;
- Less need for external controls;
- Better and more effective services for inmates;
- Continuity in service delivery within the prison;
- Complete continuance of services post-release;
- Comprehensive and multifactorial treatments that address several aspects of an inmates psychological, social and neurological needs;
- Interagency cooperation and operating agreements so that correctional officers, social workers, religious instructors, psychologists, courts, and post-release agents (e.g., probation officers) coordinate services and requirements;
- Platform for prevention and early intervention referring to the implications of this research for reducing the number of individuals with behavioral problems overall (e.g., prevent child abuse, provide nurturing environments and community supports, etc.).

It is also important that manipulations used to improve inmate behavior are conducted in a real world context; they have greater effects for a longer period of time than interventions that are contrived and do not occur in a social context. Also, services that are provided under artificial conditions (e.g., in prison) do not tend to have long term effects unless they are continued in their post-release environment. At a minimum, booster sessions should be provided in the community.

Some basic principles for cognitive neurorehabilitation strategies of all types include the following:

- Address specific dimensions of executive cognition and control that are relevant for that individual in treatment.

- Use cognitive, self-regulatory & monitoring strategies to assess consequences and inhibit impulses.
- Introduce changes to the social (or correctional) environment to increase its conduciveness to appropriate behaviors.
- Use real world tasks that do not redundantly reinforce the same behaviors or responses.
- Focus the intervention on strategies that compensate for existing deficits in a contextualized setting (e.g., one that simulates the home or community where demands are greater than in prison) using flexible cognitive and behavioral supports.
 - Identify personal mental and physical strengths.
 - Permit the inmate to take responsibility for organizing and directing their own system of supports, accounting for the restrictions within the prison.
 - Allow inmate to have input into their treatment regimen to reinforce a sense of personal responsibility and autonomy that is often needed in situations when behavioral self regulation is required.
- Behavior management should highlight management of behavior before it occurs, recognizing the warning signs of a pending outburst, rather than using a conventional consequent management where there are only responses after the behavior has occurred:
 - Contingency contracts tend to be ineffective for inmates who do not anticipate the consequences of their actions or who are impulsive.
 - Rewards and punishments are not meaningful
 - Stress induces more behavioral problems
 - *INSTEAD*: routines and low-stress situations to control impulsive responses.
- Self-awareness can be achieved by engaging the inmate in concrete self-advocacy activities:
 - Provide a repertoire of self-teaching methods
 - Make available rehabilitative or supportive videos, virtual reality and other feedback devices that the inmate can use on his/her own.
 - Providing some training for the inmate to work with professional treatment providers and social workers, which does not come easy to many who are unused to working with therapists.

Programmatic Approaches

Examples of approaches that aim to improve an underlying dysfunction include: neuropsychological enhancements; cognitive remediation; problem solving training program; “low tech”, small group interventions within an intensive behavioral rehabilitation program; psychoeducational programs; speech and language therapy; environmental enrichment; computer games for sensory and motor rehabilitation; alternative activities; functional and integrative training; and interdisciplinary consultation. To date, their efficacy in the inmate population has yet to be investigated. Specifically, interventions that modify brain functioning so as to enable acquisition of cognitive skills, regulate emotion, and behavior self-control would likely have long-term positive impact on reducing substance abuse risk.

Rehabilitation programs developed for head injured patients, such as cognitive and behavioral “neurorehabilitation” strategies, also have potential for application in the treatment of inmate misconduct. Several lines of evidence indicate that a dysfunction of the prefrontal cortex, underlying impulsivity, executive cognitive dysfunction, aggressive behavior, inability to assess consequences, behavior disinhibition and poor coping strategies, is a viable target for rehabilitation (see Bechara et al., 1996; Frith and Dolan, 1997; Kandel & Freed, 1989; Post and Weiss, 1997; Volavka, 1995). In addition, patients who have suffered an injury to the prefrontal cortex commonly have impaired decision-making and other neurocognitive deficits (Damasio et al., 1994). In brain injured individuals, a functional disconnection between frontal cortical regions and limbic structures may underlie these deficits. In turn, these impairments may influence the choice to initiate aggressive behavior and other forms of misconduct. Targeting interventions to such impairments may thus diminish risk regardless of the origins of the existing deficits. An approach that combines learning theory, cognitive psychology and neuropsychology to focus on the emotional, motivational, and cognitive functions involved in psychopathology may be used to identify and remediate cognitive and behavioral difficulties (Wilson, 1997). Thus, neurorehabilitation strategies applied to treat traumatic brain injury of the prefrontal cortex may be effective for preventing behavioral problems and reducing recidivism in the long run.

Another possible approach for impulsive behaviors is the “response-cost paradigm,” a behavior-modification technique that assists people to increase inhibitory control (Alderman & Burgess, 1990; Burgess & Alderman, 1990; Alderman & Ward, 1991). The person is given a number of tokens which can eventually be exchanged for tangible rewards (e.g., candy or cigarettes). Whenever a negative behavior is observed, however, the individual is prompted to give staff one token back and state the reason for its loss. The advantages of this procedure are that it helps to direct the person’s attention to aspects of their behavior that they are not monitoring and it helps them to recognize important feedback they are getting from others in the environment. It also appears to facilitate learning and increase awareness. This technique has been used successfully in drug abusing populations (Higgins et al., 2000) and head injured patients (Alderman & Knight, 1997).

Interestingly, it is possible to employ the same tools used to assess neuropsychological function (i.e., neuropsychological tasks) to actually *strengthen* these abilities (see Giancola, 1999 and Larose et al., 1989 for reviews). Repeat performances of these instruments appear to improve neuropsychological abilities by teaching techniques to delay gratification, inhibit impulsive responses, shift strategies to produce more advantageous consequences, and reinforce self-regulated mood and behavioral controls. Computerized versions of these assessment instruments and cognitive “games” can be programmed with a hierarchy of difficulty levels so that as executive cognitive capacity increases, the individual could play more demanding versions. Theoretically, improvements in performance would be accompanied by increases in activity of the prefrontal cortex, although no such study has yet been conducted. In either event, using neuropsychological tasks as a remedial tool may be an important addition to a comprehensive treatment approach designed to address the many facets of antisocial behavior

Another example of the success of cognitive rehabilitation techniques comes from New South Wales where individuals with aggressive, disinhibited and socially inappropriate behaviors were treated. These patients were previously considered “hopeless”, oftentimes unable to be controlled even in a locked psychiatric hospital unit. Using tokens to reward self-regulated behaviors and withholding the tokens at scheduled times when behaviors were

inappropriate resulted in substantial reductions of violent episodes (Manchester, Hodgkinson, & Casey, 1997). The most important lesson to be learned from these studies is that if aggression is not managed in a consistent way, it will ultimately be reinforced and even more difficult to extinguish over time. Also, psychopathic individuals respond much better to positive reinforcements than penalties, which can, at times, worsen their aggressiveness.

In addition to interventions that focus on impulse control and self monitoring, it is critical that other components of ECF impairment are addressed in antisocial behavior and repeated misconduct, particularly those that involve behavioral habits that are difficult to break and lifestyle choices. The Correctional Service of Canada has one of the most advanced programs for violent offenders in the world (see their website for listing of reports and publications: <http://www.csc-scc.gc.ca>). Their primary approach focuses on intensive cognitive behavioral and skills-based therapies, with an emphasis on violence (relapse) prevention. The program consists of 120 two-hour sessions over the course of four months and includes at least three individual sessions that vary according to the needs of the participants, and two testing sessions. Group sessions are two hours in length with a maximum of 12 participants. The principal interventions (modules) include:

1. Making Change: Orientation and the process of change;
2. Violence Awareness: Examining the personal origins of violence;
3. Anger Control: Basic skills of anger and stress management;
4. Solving Problems: Social problem-solving and information-processing skills;
5. Social Attitudes: Examining and reformulating the beliefs supporting violence;
6. Positive Relationships: Reducing victimization and intimate violence;
7. Resolving Conflicts: Communication and negotiation skills;
8. Positive Lifestyles: Restructuring the lifestyle triggers of violence;
9. Self Control: Developing short-term and long-term direction;
10. Violence Prevention: Developing a comprehensive violence prevention plan.

Evaluations of this program and similar cognitive approaches used in the Canadian correctional system have shown reduced levels of institutional violence, improvements in cognitive abilities and increased impulse control (Fabiano, Robinson, & Porporino, 1990a; Fabiano, Porporino, & Robinson, 1990b; Fabiano, Robinson, & Porporino, 1991).

The Roles of Stress and Psychological Problems in Treatment Amenability and Design

The results of this study showed that a childhood history of physical abuse as well as recent psychological problems predicted treatment outcomes. As discussed in Chapter 1, early stress can delay the development of the prefrontal cortex and its connections with the limbic system, in effect, compromising neuropsychological function. Thus, treatments directed at reducing stress and psychological problems having an underlying neurological basis may have lasting benefit. Specific programs that affect critical brain systems to improve behavioral and psychological self-regulation and minimize the impact of stress on neural and behavioral functioning may, in effect, reduce the number of underlying deficits and risk factors and minimize the impact of environmental stressors to address repetitive misconduct in inmates

Specific Recommendations Based on Study Findings

The present findings suggest that particular neurocognitive measures were more likely to interfere with treatment effects than others. For example, risky decision making was associated with reduced treatment readiness, gain and responsivity. Risk taking on this task has been consistently shown to activate the orbital portion of the prefrontal cortex (PFC: Fishbein et al., 2005a; Rogers et al., 1999) which regulates planning skills, sensitivity to consequences, impulse control, and other complex social behaviors. As the entire PFC is underdeveloped relative to other regions of the brain until at least age 21 (Giedd, 2004), risk taking behaviors are developmentally expected in adolescence. Yet, it appears from these findings that adults who persistently engage in high levels of risk taking are less responsive to CBT approaches in prison that attempt to reinforce skills involving impulse control, verbal negotiations, problem solving, and cautious decision making. If the basic cognitive and emotional skills that underlie these behaviors are in deficit, then interventions that do not first instill the prerequisite building blocks will be ineffective. Interventions may be more beneficial to this subgroup if they first assess the sophistication of an inmate's decision making and planning skills and the use of techniques for weighing consequences. Then, training in the prediction of outcomes and development of a future orientation, among other related skills, may help these inmates to be better equipped to make decisions involving risks (Trad, 1993).

In addition to risk taking on this task, shorter reaction times when selecting a risky decision under conditions of the highest risk also lessened the impact of the intervention. Intuitively, one would surmise that the longer the reaction time, the greater the time would be for deliberation of choices and consequences, rather than impulsive decision making. In these inmates, those who deliberated more quickly made riskier decisions and exhibited worse behavioral outcomes, suggesting impulsivity. The subgroup that made more risky decisions and had shorter reaction times while making those decisions received less benefit from the intervention. Reaction time may therefore be indicative of the quality of individuals' decision making under these circumstances. Thus, treatment program strategies to help inmates "slow down and think" and control impulsive reactions may somewhat effective given that the subgroup most likely to be unresponsive to treatment may be impulsive, resulting in a counterproductive decisions. These data suggest that a more effective approach, once again, may be to teach inmates how to accurately evaluate the risks associated with their decisions and act on that assessment.

Consistent with reaction times during the decision making task, measures of impulsivity generated by the Stop Change Task specifically compromised effects on all treatment scales (readiness, gain and responsivity) reflective of outcomes. Measures of impulsivity included both the ability to respond correctly in spite of a distracter stimulus and reaction time (which was significantly shorter in poor responders). Impulsivity has been shown to act as a significant risk factor in a wide range of high risk behaviors (Butler et al., 2004; Dawe & Loxton, 2004; de Wit & Richards, 2004; Dawes et al., 2000). Interestingly, however, impulsivity was related to treatment specific measures but not to number of infractions or segregations. Development of the brain circuitry underlying impulse control is in transition throughout adolescence and into early adulthood, suggesting that insults during this period, from stress to head injury to drug or alcohol use, may delay or impair impulse control (Chambers et al., 2003). Thus, impulsivity may also play a role in treatment responses which rely heavily upon the ability to resist impulses to engage in behavior that has yielded immediate intrinsic rewards (e.g., the high from aggressive behavior or illicit drugs) despite longer term negative consequences. Impulsivity has been shown to significantly predict aggression, drug use and treatment retention, suggesting the need for targeting impulsivity in intervention programs in general (Moeller et al., 2001).

The inability to accurately attribute emotion to certain facial expressions also moderated treatment outcomes. This ability has been consistently related to aggression, conduct disorder and other maladaptive behaviors. Prior research has fairly consistently shown that the amygdala, a structure within the brain's limbic system and inhibited by the orbital PFC, is primarily responsible for this ability particularly when emotions expressed are negative (Lee et al., 2004; Stark et al., 2004; Hamann & Mao, 2002). The increased number of errors on this task in the context of a participation in treatment suggests that inmates who are less apt to alter behavior in response to treatment may be impaired in accurately perceiving negative emotions due to either compromised amygdala function or PFC modulation. Because perception of emotional cues and expressions is a prerequisite for regulation of emotion and adaptive responding in a social context (Ochsner, 2004; Battaglia et al., 2004; Skuse et al., 2003; Bar-On et al., 2003), such misattributions may cause affected individuals to misread situations, react inappropriately, and/or miss important social signals that may predispose them to aggressive or otherwise maladaptive behavior. Interventions that provide training in reading social cues may enhance the ability not only to respond appropriately in challenging situations, but also may improve verbal communications which are highly reliant upon perception of emotion in others.

Cognitive flexibility and error monitoring, as measured by the Stroop Task, was significantly related to poor treatment outcomes but also not to institutional behaviors such as infractions and segregations. There were no differences in performance between good and poor treatment responders, however, there was a significant lengthening of reaction time during performance, suggesting cognitive inefficiency. Cognitive rehabilitation approaches, as mentioned above, may address this deficit specifically. Remediation targets areas of learning, attention, problem-solving, and visual-spatial skills using two approaches: repeated exposure to a task and/or the deconstruction of complex tasks into their simpler component parts. For example, components of a complex task such as scanning or psychomotor speed are trained separately and then integrated into performance on the complex target task. The training also focuses on memory and problem-solving, stressing the use of strategies such as forming images or drawing diagrams.

Stress reactivity as measured by cortisol was also predictive of treatment readiness and institutional behaviors. In all cases, those who performed less well in treatment showed lower cortisol reactivity. Although high levels of cortisol release is related to acute stress and anxiety, lower cortisol sensitivity may be reflective of either a genetic propensity to lower stress reactivity or a dampening of stress responses that can occur after chronic exposure to stressful situations. This study cannot determine the origins of low stress responses in those who performed less well in treatment. However, given that stress is known to (a) produce cognitive impairment, (b) dysregulate emotional responses, (c) increase the likelihood of recidivism and relapse and (d) interfere with treatment benefits, approaches to minimize the impact of stress may be a critical part of treatment for affected inmates. Unfortunately, there are no known treatments for low stress reactivity. If low responses are due to chronic adversity or trauma, then a number of stress reduction programs may be effective for these inmates.

With these findings in mind, the following components in a treatment approach are recommended:

- ✓ Emotional perception and regulation
- ✓ Delayed reinforcement exercises
- ✓ Psychoeducation: feedback on difficulties, effects, and strategies
- ✓ Speech and language therapy

- ✓ Problem solving training
- ✓ Training with cueing, planning & task-specific routines
- ✓ Social skills training
- ✓ Functional, integrative and restorative training
- ✓ Specific training on appropriate attentional functions
- ✓ Stress management

Enhancing the Rigor of Assessments

Another overriding practical goal of this research is to develop assessment tools that can be readily used within both correctional and clinical settings to identify individuals at high risk for violence, psychopathic behavior, drug abuse and other types of persistent antisocial behaviors. Studies suggest that certain biological vulnerabilities, in interaction with adverse social conditions, may underlie these behaviors and are more prevalent within offender and inmate populations. Using multivariate (measuring several variables at once) assessment instruments, offenders can be triaged or subtyped on the basis of underlying disorders for targeted treatments. Because offenders who do not respond to conventional treatments often possess underlying susceptibilities and adverse social conditions that compound their problems, and are particularly at risk for persistent serious criminality and substance abuse, this subgroup requires more intensive and customized approaches. Accordingly, offenders will be better equipped to maintain control over their own behavior rather than requiring severe methods of external restraint that are terminated when they are released.

The neuropsychological instruments used in the present study are noninvasive and easily administered on laptop computers with the appropriate training. Appendix II provides a few screen shots of these instruments to illustrate what was used in this study. Administrators and treatment providers interested in developing assessment batteries to be used in prisons to identify underlying deficits in antisocial inmates would be well advised to familiarize themselves with several of these new test instruments. These tools are more specific to ECF and are not as contaminated with measures of other cognitive components as more traditional batteries. Newman's Card Task (Newman, 1987), the Gambling Task (Bechara et al., 1997), the CDMT (Rogers et al., 1999) and several derivations of the Go/No-Go Task (Brown, Fenwick, & Howard, 1989) are excellent examples of cognitive instruments specifically designed to measure dimensions of ECF with a particular emphasis on decision-making, assessment of consequences, reward/punishment sensitivity, and impulsivity. There is evidence that ECF components measured by Newman's, Bechara's, Roger's and the Go/No-Go tasks discriminate between violent and nonviolent subjects as well as drug abusers and nonusers. The present study suggests that they are also useful in discriminating between those likely and less likely to respond favorably to correctional treatments. Each of these noninvasive tasks has been imaged and findings demonstrate differences in activity in particular areas of the prefrontal cortex between experimental and control participants. However, more research is needed with non-clinical samples to validate these noninvasive instruments with respect to subclinical impaired ECF. More basic research is also needed to further specify regions of the prefrontal cortex that are associated with antisocial behavior, and that may be differentially associated with other high-risk behaviors such as alcohol and drug abuse.

Test batteries should assess the following functions:

- General Neuropsychological Function and IQ
- Executive Cognitive Function: Screener or full assessment

- Emotional Regulation (behavioral and autonomic nervous system functions)
- Emotional Perception (social cues)
- Psychiatric, Psychological and Behavioral Characterizations
- Drug Abuse History

Screeners that are helpful include:

- Neurobehavioral Cognitive Status Examination (NCSE), N.A. Doninger et al., 2000
- Cognitive Behavioral Rating Scale (CBRS), T. Galski et al., 1994
- Neurobehavioral Functioning Inventory, K.P. Weinfurt, 1999
- Neurobehavioral Rating Scale (NRS), Compendium, Levin et al., 1987. BMJ Publishing Group
- Executive Interview (EXIT), University of Texas Health Science Center, D.R. Royall

And some recommended neuropsychological tasks are listed below:

- Rogers Decision Making Task
- Gambling Task
- Stroop Interference Task
- Delay Discounting Task
- Emotional Stroop
- Impulsivity and Vigilance CPTs
- Stop Change and Delay Discounting Tasks
- Facial Recognition Tasks
- Inclusion of Physiological Measures

And finally, the following books are particularly helpful in understanding neuropsychological deficits that underlie behavioral disorders and in developing programs to remediate them:

Fishbein DH (Editor and Author) (2004). The Science, Treatment and Prevention of Antisocial Behaviors: Volume II. New Jersey: Civic Research Institute, Inc.

Fishbein DH (Editor and Author) (2000). The Science, Treatment and Prevention of Antisocial Behaviors: Applications to the Criminal Justice System: Volume I. New Jersey: Civic Research Institute.

Stuss, D.T., Winocur, G., & Robertson, I.A. (1999 & 2005). Cognitive Neurorehabilitation. Cambridge, MA: Cambridge University Press.

Williams, W.H. and Evans, J.J. (2003) Biopsychosocial Approaches in Neurorehabilitation: Assessment and Management of Neuropsychiatric, Mood and Behavioural Disorders. Psychology Press: Taylor and Francis Group.

Conclusions

Treatment efforts that focus on the underlying mechanisms in antisocial behaviors, and not just the eventual behavioral outcomes (e.g., aggression or substance abuse), will more likely succeed in reversing or redirecting these behavioral outcomes. Successful regimens attempt to comprehensively identify the unique conditions that contribute to an individual's antisocial behavior and may employ a combination of behavioral, cognitive, psychological and, when appropriate, pharmaceutical therapies. Research consistently indicates that far fewer crimes

are committed when individuals are actively in treatment than when they do not receive treatment (see Fishbein, 1991; Fishbein and Pease, 1996). For drug users in particular, the length of treatment is negatively related to crime and drug use.

This mixture of scientific and pragmatic approaches to managing antisocial behavior promises to further advance our potential to improve CJ policies. Informing the criminal justice, mental health and public health systems of this generation of research findings is critical to address the triggers (both causal and exacerbating) in the social environment that can contribute to antisocial behaviors in susceptible individuals. Incorporating this knowledge regarding underlying generators of antisocial behavior into CJ policies will reach a greater proportion of the population than will individual treatment programs, and will contribute eventually to large-scale system-wide policy changes, such as in bail, pretrial detention, sentencing and release decisions, as well as child rearing and school practices. The availability of more effective treatments for various antisocial behaviors will most likely compel the general public and policy makers to consider alternative official responses to criminal conduct.

An understanding of underlying mechanisms in violence has the potential to produce more favorable treatment outcomes in offenders and to develop more humane policies that will have preventative effects. The ability to identify fundamental differences between offenders who respond to standard correctional therapies and those who do not is a large component of this objective. The present study showed that conditions known to contribute to antisocial behavior also relate to differential responses to treatment interventions between subtypes of offenders. Such knowledge will serve to inform the field as to individual characteristics that distinguish between offenders positively affected by various interventions relative to those least affected and determine what aspects of treatment are needed to design an effective, targeted intervention strategy. The availability of more effective treatments for various antisocial behaviors will offer policy makers additional tools in preventing and responding to criminal conduct.

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APPENDIX I

Questionnaire Instruments

Addiction Severity Index – Revised (Fishbein)

INSTRUCTIONS:

0 = no X = question not answered
1 = yes N = question not applicable

SUMMARY OF PATIENTS RATING SCALE

0 = not at all 3 = considerably
1 = slightly 4 = extremely
2 = moderately

ID NUMBER: _____ **DATE:** _____ **TIME:** _____

GENDER: **DATE OF BIRTH**

1 = Male
2 = Female

GEOGRAPHIC AREA: _____

RACE:
1 = White
2 = Black
3 = American Indian
4 = Alaskan Native
5 = Asian or Pacific Islander
6 = Hispanic – Mexican
7 = Hispanic – Puerto Rican
8 = Hispanic – Cuban
9 = Other Hispanic

RELIGIOUS PREFERENCE:
1 = Christian/Protestant
2 = Catholic
3 = Jewish
4 = Islamic
5 = Other (specify: _____)
6 = None

Marital status
1 = married 2 = remarried 3 = widowed 4 = separated 5 = divorced 6 = never married

What is your weight _____ your height _____ and which hand is dominant (circle): right or left

How many months have you been in prison?

MEDICAL STATUS

- How many times in your life have you been hospitalized for medical problems? (include o.d.'s, d.t.'s, exclude detox)
- How long ago was your last hospitalization for a physical problem? **Years** **months**
- Do you have any chronic medical problems that continue to interfere with your life?
0 = no
1 = yes (specify: _____)
- Are you taking any prescribed medication on a regular basis for a physical problem?
0 = no
1 = yes (specify: _____)
- How many days have you experienced medical problems in the past 30?
- Have you ever experienced a severe head injury?
0 = no
1 = yes (specify age[s]: _____) [Location of skull: _____]

6.a. If yes to #6, did you black out?

6.b. If yes to #6.a., for how long were you out? Days: _____ Hours: _____ Minutes: _____

EMPLOYMENT/SUPPORT STATUS

1. Education completed (GED = 12 yrs)
years

6. Did someone contribute to your support in any way?
0 = no
1 = yes

2. Training or technical education completed
0 = no
1 = yes

7. Usual employment pattern, past 3 years:
1 = full time (40hrs/wk)
2 = part time (reg hrs)
3 = part time (irreg., daywork)
4 = student
5 = service
6 = retired/disability
7 = unemployed
8 = in controlled environment

3. Do you have a profession, trade, or skill?
(specify: _____)

4. In years or months, how long was your longest full time job?
Mos

8. How many people depended on you for the majority of their food, shelter, etc.?

5. Usual (or last) occupation?
Specify in detail:

(see ASI manual for Hollingshead rating)

DRUG/ALCOHOL USE

For lifetime, specify in years, and include age of onset:

| | Life time (mo) | | |
|---|--|---|---|
| 01 alcohol – any use Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | 14. Which substance is the major problem (or drug of choice)? (0=no problem; 15 = alcohol and drug; 16 polydrug) | <input type="checkbox"/> |
| 02 alcohol – to the point of intoxication | <input type="text"/> <input type="text"/> <input type="text"/> | 15. How long was your last period of <u>voluntary</u> abstinence from this drug of choice? (0 = never abstinent) | <input type="text"/> <input type="text"/> months |
| 03 heroin Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | 16. How many times have you: Had DTs | <input type="checkbox"/> |
| 04 methadone Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | Overdosed | <input type="checkbox"/> |
| 05 other opiates/ pain killers Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | 17. How many times in your life have you been treated for: Alcohol abuse | <input type="text"/> <input type="text"/> |
| 06 barbiturates/downers Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | Drug abuse | <input type="text"/> <input type="text"/> |
| 07 other depressants Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 08 cocaine/crack Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 09 amphetamines/speed Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 10 marijuana Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 11 hallucinogens, PCP, acid Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 12 inhalants, sniffing Onset: _____ | <input type="text"/> <input type="text"/> <input type="text"/> | | |
| 13 more than one substance per day (incl alcohol) | <input type="text"/> <input type="text"/> <input type="text"/> | | |

FAMILY HISTORY (Biological family only)

Have any of your relatives had what you would call a significant drinking, drug use or psychiatric problem – one that did or should have led to treatment? (Specify full and half siblings.)

| | Alcohol use | drug use | psychiatric |
|---|--------------------------|--------------------------|--------------------------|
| Immediate (mother, father, brother, sister) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Extended (grandparent, uncle, aunt, cousin) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Directions: Place “0” in category where the answer is no for all relatives in that category; Place “1” where the answer is yes for any relatives in that category; Place “X” where answer is uncertain or “I don’t know”; Place “N” where there never was a relative in that category. Put number of relatives in category if more than one (e.g., 2 aunts...).

PSYCHIATRIC STATUS

How many times have you been treated for any psychological or emotional problems?

| | |
|--|---|
| 1. In a hospital | <input type="checkbox"/> <input type="checkbox"/> |
| 2. As an outpatient or private patient | <input type="checkbox"/> <input type="checkbox"/> |

Have you had a significant period (that was not related to drug/alcohol use) in which you have? 0 = no; 1 = yes

| | | | |
|---|---|--|--------------------------|
| 3. experienced serious depression | <input type="checkbox"/> | 7. experienced trouble controlling violent behavior | <input type="checkbox"/> |
| 4. experienced serious anxiety or tension | <input type="checkbox"/> | 8. experienced serious thoughts of suicide | <input type="checkbox"/> |
| 5. experienced hallucinations | <input type="checkbox"/> | 9. attempted suicide | <input type="checkbox"/> |
| 6. experienced trouble understanding, concentrating or remembering | <input type="checkbox"/> | 10. Been prescribed medication for any psychological/emotional problem | <input type="checkbox"/> |
| 11. How many days in the past 30 have you experienced these psychological/emotional problems? | <input type="checkbox"/> <input type="checkbox"/> | | |

INTERVIEWER IMPRESSIONS

At the time of the interview, is the subject: 0 = no; 1 = yes

Is any of the above information significantly distorted by:

14. Obviously depressed/withdrawn

15. Obviously hostile

16. Obviously anxious/nervous

17. Having trouble with reality testing, thought disorders, paranoid thinking

18. Having trouble comprehending, concentrating, remembering

19. Having suicidal thoughts

21. Patient's misrepresentation? 0 = no; 1 = yes

22. Patient's inability to understand? 0 = no; 1 = yes

ATTITUDE [Psychopathy] SCALE (Levenson)

Listed below are a number of statements. These are opinions, so there are no right or wrong answers. You will probably disagree with some items and agree with others. Please read each statement carefully and circle the number that best describes the extent to which you agree or disagree with each statement, or the extent to which each statement applies to you.

1 = disagree strongly
2 = disagree somewhat

3 = agree somewhat
4 = agree strongly

- | | | | | |
|---|---|---|---|---|
| 1. I am often bored. | 1 | 2 | 3 | 4 |
| 2. In today's world, I feel justified in doing anything I can get away with to succeed. | 1 | 2 | 3 | 4 |
| 3. Before I do anything, I carefully consider the possible consequences. | 1 | 2 | 3 | 4 |
| 4. My main purpose in life is getting as many goodies as I can. | 1 | 2 | 3 | 4 |
| 5. I quickly lose interest in tasks I start. | 1 | 2 | 3 | 4 |
| 6. I have been in a lot of shouting matches with other people. | 1 | 2 | 3 | 4 |
| 7. Even if I were trying very hard to sell something, I wouldn't lie about it. | 1 | 2 | 3 | 4 |
| 8. I find myself in the same kinds of trouble, time after time. | 1 | 2 | 3 | 4 |
| 9. I enjoy manipulating other people's feelings | 1 | 2 | 3 | 4 |
| 10. I find that I am able to pursue one goal for a long time. | 1 | 2 | 3 | 4 |
| 11. Looking out for myself is my top priority. | 1 | 2 | 3 | 4 |
| 12. I tell other people what they want to hear so that they will do what I want them to do. | 1 | 2 | 3 | 4 |

| | | | | |
|---|---|---|---|---|
| 13. Cheating is not justifiable because it is unfair to others. | 1 | 2 | 3 | 4 |
| 14. Love is overrated. | 1 | 2 | 3 | 4 |
| 15. I would be upset if my success came at someone else's expense. | 1 | 2 | 3 | 4 |
| 16. When I get frustrated, I often "let off steam" by blowing my top. | 1 | 2 | 3 | 4 |
| 17. For me, what's right is whatever I can get away with. | 1 | 2 | 3 | 4 |
| 18. Most of my problems are due to the fact that other people just don't understand me. | 1 | 2 | 3 | 4 |
| 19. Success is based on survival of the fittest: I am not concerned about the losers. | 1 | 2 | 3 | 4 |
| 20. I don't plan anything very far in advance. | 1 | 2 | 3 | 4 |
| 21. I feel bad if my words or actions cause someone else to feel emotional pain. | 1 | 2 | 3 | 4 |
| 22. Making a lot of money is my most important goal. | 1 | 2 | 3 | 4 |
| 23. I let others worry about higher values; my main concern is with the bottom line. | 1 | 2 | 3 | 4 |
| 24. I often admire a really clever scam. | 1 | 2 | 3 | 4 |
| 25. People who are stupid enough to get ripped off usually deserve it. | 1 | 2 | 3 | 4 |
| 26. I make a point of trying not to hurt others in pursuit of my goals. | 1 | 2 | 3 | 4 |

REACTIVE-PROACTIVE QUESTIONNAIRE

Scores (0, 1 or 2) for proactive items (2, 4, 6, 9, 10, 12, 15, 17, 18, 20, 21, 23) and reactive items (1, 3, 5, 7, 8, 11, 13, 14, 16, 19, 22) are summated to form the scales. Proactive and reactive scales scores are summated to obtain Total scores.

Instructions. There are times when most of us feel angry, or have done things we should not have done. Rate each of the items below by putting a circle around either 0 (never), 1 (sometimes), or 2 (often). Don't spend a lot of time thinking about the items – just give your first response. Make sure you answer all the items.

0 = NEVER

1 = SOMETIMES

2 = OFTEN

How often have you...

- | | | | |
|---|---|---|---|
| 1. Yelled at others when they have annoyed you | 0 | 1 | 2 |
| 2. Had fights with others to show who was on top | 0 | 1 | 2 |
| 3. Reacted angrily when provoked by others | 0 | 1 | 2 |
| 4. Taken things from other people | 0 | 1 | 2 |
| 5. Gotten angry when frustrated | 0 | 1 | 2 |
| 6. Vandalized something for fun | 0 | 1 | 2 |
| 7. Had temper tantrums | 0 | 1 | 2 |
| 8. Damaged things because you felt mad | 0 | 1 | 2 |
| 9. Had a gang fight to be cool | 0 | 1 | 2 |
| 10. Hurt others to win a game | 0 | 1 | 2 |
| 11. Become angry or mad when you don't get your way | 0 | 1 | 2 |
| 12. Used physical force to get others to do what you want | 0 | 1 | 2 |
| 13. Gotten angry or mad when you lost a game | 0 | 1 | 2 |
| 14. Gotten angry when others threatened you | 0 | 1 | 2 |
| 15. Used force to obtain money or things from others | 0 | 1 | 2 |
| 16. Felt better after hitting or yelling at someone | 0 | 1 | 2 |
| 17. Threatened and bullied someone | 0 | 1 | 2 |
| 18. Made obscene phone calls for fun | 0 | 1 | 2 |
| 19. Hit others to defend yourself | 0 | 1 | 2 |
| 20. Gotten others to gang up on someone else | 0 | 1 | 2 |
| 21. Carried a weapon to use in a fight | 0 | 1 | 2 |
| 22. Gotten angry or made or hit others when teased | 0 | 1 | 2 |
| 23. Yelled at others so they would do things for you | 0 | 1 | 2 |

Early Trauma Inventory

Subject Number: _____ **DATE:** _____ **Facility:** _____

Sometimes people experience events which may be seen as stressful. Before the age of 18, did you ever experience any of the following things? For each event which you experienced before the age of 18, circle yes and the number which best corresponds to the number of times which you experienced the event:

1. Were you involved in a serious accident or personal injury? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

2. Did you suffer a serious personal illness (such as one that required hospitalization, surgery, blood transfusion, or emergency help)? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

3. Did you experience serious injury or death of a partner, wife, primary caretaker or sibling? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

4. Did you experience the separation of your parents? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

5. Were you raised in a home other than that of your parents? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

Whose home was it?

0 **1** **2** **3**
Relative Friend Foster Home Adoptive Home

5. Did you experience the serious injury, death or murder of a friend or someone close to you? **YES / NO**

If yes, how many times?

0 **1** **2**
Never Once 2-10 times

6. Did you ever witness violence towards others, including family members? **YES / NO**

If yes, how many times?

0 **1** **2**

Never Once 2-10 times

7. Were you ever the victim of a property crime such as burglary or car theft? **YES / NO**

If yes, how many times?

0 1 2
Never Once 2-10 times

8. Were you ever the victim of a personal crime such as armed robbery, assault or rape? **YES / NO**

If yes, how many times?

0 1 2
Never Once 2-10 times

9. Were you ever in combat, or a prisoner of war or hostage? **YES / NO**

If yes, for how many months total?

0 1 2
Never Once 2-10 times

10. Did you ever experience the death of your biological child? **YES / NO**

If yes, how many times?

0 1 2
Never Once 2-10 times

If you answered “yes” for any of the stressful events listed above, think about what effect these events may have had on you today.

1. Do you believe these events had a negative effect on you emotionally? **YES / NO**

2. Do you believe these events have affected your current functioning at work or school?

YES / NO

3. Do you believe these events have affected your current social and family relationships?

YES / NO

Sometimes people get spanked a lot, physically punished, or disciplined in a very strict way when they are growing up. Think if before the age of 18 you ever experienced any of the following things. For each event you experienced before the age of 18, circle yes and the number which best corresponds to the number of times you experienced the event.

1. Were you ever spanked with a hand? **YES / NO (If no, go to question 2)**

a. *How old were you the first time this occurred?*

1 2 3
age 0-5 age 6-12 age 13-18

b. *In general, how often did this occur?*

1 2 3 4
Rarely Often Once in a While Daily

c. *Who was the person who most commonly did this?*

| | | | |
|--|-----------------------|-------------------------|-----------------|
| 0 | 1 | 2 | 3 |
| Parent or Primary caretaker | Other relative | Someone you knew | Stranger |

2. Were you ever slapped in the face with an open hand? YES / NO (If no, go to question 3)

a. *How old were you the first time this occurred?*

| | | |
|----------------|-----------------|------------------|
| 1 | 2 | 3 |
| age 0-5 | age 6-12 | age 13-18 |

b. *In general, how often did this occur?*

| | | | |
|---------------|--------------|------------------------|--------------|
| 1 | 2 | 3 | 4 |
| Rarely | Often | Once in a While | Daily |

c. *Who was the person who most commonly did this?*

| | | | |
|--|-----------------------|-------------------------|-----------------|
| 0 | 1 | 2 | 3 |
| Parent or Primary caretaker | Other relative | Someone you knew | Stranger |

3. Were you ever punched, kicked, choked, pushed, or burned? YES / NO (If no go to question 4)

a. *How old were you the first time this occurred?*

| | | |
|----------------|-----------------|------------------|
| 1 | 2 | 3 |
| age 0-5 | age 6-12 | age 13-18 |

b. *In general, how often did this occur?*

| | | | |
|---------------|--------------|------------------------|--------------|
| 1 | 2 | 3 | 4 |
| Rarely | Often | Once in a While | Daily |

c. *Who was the person who most commonly did this?*

| | | | |
|--|-----------------------|-------------------------|-----------------|
| 0 | 1 | 2 | 3 |
| Parent or Primary caretaker | Other relative | Someone you knew | Stranger |

4. Were you ever hit or spanked with an object like a belt, fly-swatter, or ruler, or had an object thrown at you? YES / NO (If no, go to question 6).

a. *How old were you the first time this occurred?*

| | | |
|----------------|-----------------|------------------|
| 1 | 2 | 3 |
| age 0-5 | age 6-12 | age 13-18 |

b. *In general, how often did this occur?*

| | | | |
|---------------|--------------|------------------------|--------------|
| 1 | 2 | 3 | 4 |
| Rarely | Often | Once in a While | Daily |

c. *Who was the person who most commonly did this?*

| | | | |
|----------------------------|-----------------------|-------------------------|-----------------|
| 0 | 1 | 2 | 3 |
| Parent or Caretaker | Other relative | Someone you knew | Stranger |

5. Were you ever tied up or locked in a closet? YES / NO (If no, go to next question)

a. *How old were you the first time this occurred?*

b. In general, how often did this occur?

1 2 3 4
Rarely Often Once in a While Daily

c. Who was the person who most commonly did this?

0 1 2 3
Parent or Other relative Someone you knew Stranger
Primary caretaker

3. Did your parents or caretakers often fail to meet your basic needs (such as food, clothing, shelter, etc)? YES / NO (If no go to next question)

a. How old were you the first time this occurred?

1 2 3
age 0-5 age 6-12 age 13-18

b. In general, how often did this occur?

1 2 3 4
Rarely Often Once in a While Daily

c. Who was the person who most commonly did this?

0 1 2 3
Parent or Other relative Someone you knew Stranger
Primary caretaker

If you answered “yes” for any of these events involving being spanked, sternly disciplined, or physically punished, think about what affect these events my have had on you today.

1. Do you believe these events had an effect on you emotionally? YES / NO

2. Do you believe these events have affected your current functioning at work or school? YES / NO

3. Do you believe these events have affected your current social and family relationships? YES / NO

While growing up people may have sexual experiences that they don’t want to have or that make them uncomfortable. Sometimes threes experiences are with people they know and sometimes with strangers. Do you recall whether anything like that ever happened to you before the age of 18? Think if before the age of 18 you ever experience any of the following things. For each event that you experienced before the age of 18, circle yes and the number which best corresponds to the number of times which you experienced the event.

1. Were you ever exposed to someone “flashing” or exposing his or her sexual parts to you? YES / NO (If no, go to question 3)

a. How old were you the first time this occurred?

1 2 3
age 0-5 age 6-12 age 13-18

b. In general, how often did this occur?

1 2 3 4
Rarely Often Once in a While Daily

c. *Who was the person who most commonly did this?*

0 1 2 3
Parent or Other relative Someone you knew Stranger
Primary caretaker

2. Did anyone ever spy on you or watch you while bathing, dressing, or using the bathroom? YES / NO (If no, go to question 4)

a. *How old were you the first time this occurred?*

1 2 3
age 0-5 age 6-12 age 13-18

b. *In general, how often did this occur?*

1 2 3 4
Rarely Often Once in a While Daily

c. *Who was the person who most commonly did this?*

0 1 2 3
Parent or Other relative Someone you knew Stranger
Primary caretaker

3. Were you ever forced or coerced to watch sexual acts, including masturbation and / or sex between people? YES / NO (If no, go to question 5)

a. *How old were you the first time this occurred?*

1 2 3
age 0-5 age 6-12 age 13-18

b. *In general, how often did this occur?*

1 2 3 4
Rarely Often Once in a While Daily

c. *Who was the person who most commonly did this?*

0 1 2 3
Parent or Other relative Someone you knew Stranger
Primary caretaker

4. Were you ever touched in an intimate or private part of your body, (e.g. thighs, genitals) in a way that surprised you or made you uncomfortable? YES / NO (If no, go to question 6)

a. *How old were you the first time this occurred?*

1 2 3
age 0-5 age 6-12 age 13-18

b. *In general, how often did this occur?*

1 2 3 4
Rarely Often Once in a While Daily

c. *Who was the person who most commonly did this?*

0 1 2 3

**Parent or
Primary caretaker** **Other relative** **Someone you knew** **Stranger**

5. Were you ever forced or coerced to touch another person in an intimate or private part of their body, or experience someone rubbing their genitals against you? YES / NO (If no, go to question 7)

a. How old were you the first time this occurred?

1 2 3
age 0-5 **age 6-12** **age 13-18**

b. In general, how often did this occur?

1 2 3 4
Rarely **Often** **Once in a While** **Daily**

c. Who was the person who most commonly did this?

0 1 2 3
**Parent or
Primary caretaker** **Other relative** **Someone you knew** **Stranger**

6. Did anyone ever perform, or have you perform anal, genital, or oral sex with him or her against your will? YES / NO (If no, go to question 8)

a. How old were you the first time this occurred?

1 2 3
age 0-5 **age 6-12** **age 13-18**

b. In general, how often did this occur?

1 2 3 4
Rarely **Often** **Once in a While** **Daily**

c. Who was the person who most commonly did this?

0 1 2 3
**Parent or
Primary caretaker** **Other relative** **Someone you knew** **Stranger**

7. Were you ever forced or coerced to perform sexual acts for money? YES / NO (If no, go to next question)

a. How old were you the first time this occurred?

1 2 3
age 0-5 **age 6-12** **age 13-18**

b. In general, how often did this occur?

1 2 3 4
Rarely **Often** **Once in a While** **Daily**

c. Who was the person who most commonly did this?

0 1 2 3
**Parent or
Primary caretaker** **Other relative** **Someone you knew** **Stranger**

If you answered “yes” for any of these events involving being spanked, sternly disciplined, or physically punished, think about what affect these events my have had on you today.

1. Do you believe these events had an effect on you emotionally? YES / NO

**2. Do you believe these events have affected your current functioning at work or school?
YES / NO**

**3. Do you believe these events have affected your current social and family relationships?
YES / NO**

REACTIONS TO PROVOCATION (NAS) (Novaco, 1990)

PART A

The statements below describe things that people think, feel, and do. To what extent are they true for you? For each item indicate whether it is (1) never true, (2) sometimes true, or (3) always true. Use the scale on the right side by putting a circle around the number (1, 2, or 3) that fits your response to the statement.

| | Never True | Sometimes True | Always True |
|---|---------------|-------------------|----------------|
| 1. I notice annoying things right away. | 1 | 2 | 3 |
| 2. Once something makes me angry, I keep thinking about it. | 1 | 2 | 3 |
| 3. Every week I meet someone I dislike. | 1 | 2 | 3 |
| 4. I know that people are talking about me behind my back. | 1 | 2 | 3 |
| 5. Some people would say that I am a hothead. | 1 | 2 | 3 |
| 6. When I get angry, I stay angry for hours. | 1 | 2 | 3 |
| 7. My muscles feel tight and wound-up. | 1 | 2 | 3 |
| 8. I walk around in a bad mood. | 1 | 2 | 3 |
| 9. My temper is quick and hot. | 1 | 2 | 3 |
| 10. When someone yells at me, I yell back at them. | 1 | 2 | 3 |
| 11. I have had to be rough with people who bothered me. | 1 | 2 | 3 |
| 12. I feel like smashing things. | 1 | 2 | 3 |
| 13. When a person says something that offends me, I just stop listening. | 1 | 2 | 3 |
| 14. I can't sleep when I have been done wrong. | 1 | 2 | 3 |
| 15. If I don't like someone, it doesn't bother me to hurt their feelings. | 1 | 2 | 3 |
| 16. People can be trusted to do what they say. | 1 | 2 | 3 |
| 17. When I get angry, I get really angry. | 1 | 2 | 3 |
| 18. When I think about something that makes me angry, I get even more angry. | 1 | 2 | 3 |
| 19. I feel agitated and unable to relax. | 1 | 2 | 3 |
| 20. I get annoyed when someone interrupts me. | 1 | 2 | 3 |
| 21. If someone bothers me, I react first and think later. | 1 | 2 | 3 |
| 22. If I don't like somebody, I'll tell them off. | 1 | 2 | 3 |
| 23. When I get mad, I can easily hit someone. | 1 | 2 | 3 |
| 24. When I get angry, I throw or slam things. | 1 | 2 | 3 |
| 25. If a person does something nasty, it sticks out in my mind. | 1 | 2 | 3 |
| 26. When someone makes me angry, I think about getting even. | 1 | 2 | 3 |
| 27. If someone cheats me, I'd make them feel sorry. | 1 | 2 | 3 |
| 28. People act like they are being honest when they really have something to hide. | 1 | 2 | 3 |
| 29. When I get angry, I feel like smashing things. | 1 | 2 | 3 |

| | Never True | Sometimes True | Always True |
|--|---------------|-------------------|----------------|
| 30. Some people get angry and get over it, but for me it takes a long time. | 1 | 2 | 3 |
| 31. I have trouble sleeping or falling asleep. | 1 | 2 | 3 |
| 32. A lot of little things bug me. | 1 | 2 | 3 |
| 33. I have a fiery temper that arises in an instant. | 1 | 2 | 3 |
| 34. Some people need to be told to “get lost”. | 1 | 2 | 3 |
| 35. If someone hits me first, I hit them back. | 1 | 2 | 3 |
| 36. When I get angry at someone, I take it out on whomever is around. | 1 | 2 | 3 |
| 37. Once I get angry, I have trouble concentrating. | 1 | 2 | 3 |
| 38. I feel like I am getting a raw deal out of life. | 1 | 2 | 3 |
| 39. When I don’t like somebody, there’s no point in being nice to them. | 1 | 2 | 3 |
| 40. When someone does something nice for me, I wonder about the hidden reason. | 1 | 2 | 3 |
| 41. It makes my blood boil to have someone make fun of me. | 1 | 2 | 3 |
| 42. When I get mad at someone, I give them the silent treatment. | 1 | 2 | 3 |
| 43. My head aches when people annoy me. | 1 | 2 | 3 |
| 44. It bothers me when someone does things the wrong way. | 1 | 2 | 3 |
| 45. When I get angry, I fly off the handle before I know it. | 1 | 2 | 3 |
| 46. When I start to argue with someone, I don’t stop until they do. | 1 | 2 | 3 |
| 47. Some people need to get knocked around. | 1 | 2 | 3 |
| 48. If someone makes me angry, I’ll tell other people about them. | 1 | 2 | 3 |

PART B

The following items describe situations that can make someone angry. The scale on the right side is for the degree or amount of anger. For each of these situations below, please indicate the amount of anger that you would feel if it actually happened to you. Put a circle around the number in the scale on the right side.

| | Not at all angry | A little angry | Fairly angry | Very angry |
|---|------------------------|----------------------|-----------------|---------------|
| 1. Being criticized in front of other people for something that you have done. | 1 | 2 | 3 | 4 |
| 2. Seeing someone bully another person who is smaller or less powerful. | 1 | 2 | 3 | 4 |
| 3. You are trying to concentrate, but someone keeps making noise. | 1 | 2 | 3 | 4 |
| 4. People who act like they know it all. | 1 | 2 | 3 | 4 |
| 5. Being slowed down by another person's mistakes. | 1 | 2 | 3 | 4 |
| 6. You are in line to get something, and someone cuts in front of you. | 1 | 2 | 3 | 4 |
| 7. Not being given recognition for doing good work. | 1 | 2 | 3 | 4 |
| 8. You are watching a TV program, when someone comes along and switches the channel. | 1 | 2 | 3 | 4 |
| 9. People who don't really listen when you talk to them. | 1 | 2 | 3 | 4 |
| 10. Getting cold soup or cold vegetables for dinner. | 1 | 2 | 3 | 4 |
| 11. Having someone look over your shoulder while you are working. | 1 | 2 | 3 | 4 |
| 12. Being overcharged by someone for a repair. | 1 | 2 | 3 | 4 |
| 13. You need to get somewhere in a hurry, but you get stuck in traffic. | 1 | 2 | 3 | 4 |
| 14. People who think that they are better than you are. | 1 | 2 | 3 | 4 |
| 15. You are carrying a cup of coffee, and someone bumps into you. | 1 | 2 | 3 | 4 |
| 16. Someone making fun of the clothes you are wearing. | 1 | 2 | 3 | 4 |
| 17. Being singled out for correction, when someone else doing the same thing is ignored. | 1 | 2 | 3 | 4 |
| 18. You make arrangements to do something with a person who backs out at the last minute. | 1 | 2 | 3 | 4 |
| 19. People who think that they are always right. | 1 | 2 | 3 | 4 |
| 20. Just after waking-up in the morning, someone starts giving you a hard time. | 1 | 2 | 3 | 4 |
| 21. Someone looks through your things without your permission. | 1 | 2 | 3 | 4 |
| 22. Being accused of something that you didn't do. | 1 | 2 | 3 | 4 |
| 23. You lend something to someone, and they fail to return it. | 1 | 2 | 3 | 4 |
| 24. Someone who is always contradicting you. | 1 | 2 | 3 | 4 |
| 25. It's mealtime and you are hungry, and someone plays a practical joke on you. | 1 | 2 | 3 | 4 |

REACTIONS TO PROVOCATION (NAS)

PART A

I. Cognitive Domain

| | Never True | Sometimes True | Always True |
|--|---------------|-------------------|----------------|
| <i>Attentional Focus:</i> | | | |
| 1. I notice annoying things right away. | 1 | 2 | 3 |
| 13. When a person says something that offends me, I just stop listening. | 1 | 2 | 3 |
| 25. If a person does something nasty, it sticks out in my mind. | 1 | 2 | 3 |
| 37. Once I get angry, I have trouble concentrating. | 1 | 2 | 3 |
| <i>Rumination:</i> | | | |
| 2. Once something makes me angry, I keep thinking about it. | 1 | 2 | 3 |
| 14. I can't sleep when I have been done wrong. (DRS) | 1 | 2 | 3 |
| 26. When someone makes me angry, I think about getting even. | 1 | 2 | 3 |
| 38. I feel like I am getting a raw deal out of life. (sBD) | 1 | 2 | 3 |
| <i>Hostile Attitude:</i> | | | |
| 3. Every week I meet someone I dislike. (BD) | 1 | 2 | 3 |
| 15. If I don't like someone, it doesn't bother me to hurt their feelings. | 1 | 2 | 3 |
| 27. If someone cheats me, I'd make them feel sorry. | 1 | 2 | 3 |
| 39. When I don't like somebody, there's no point in being nice to them. | 1 | 2 | 3 |
| <i>Suspicion:</i> | | | |
| 4. I know that people are talking about me behind my back. (BD;MAI,CM) | 1 | 2 | 3 |
| 16. People can be trusted to do what they say. | 1 | 2 | 3 |
| 28. People act like they are being honest when they really have something to hide. | 1 | 2 | 3 |
| 40. When someone does something nice for me, I wonder about the hidden reason. (sBD;sCM) | 1 | 2 | 3 |

II. Arousal Domain

Intensity:

| | | | |
|---|---|---|---|
| 5. Some people would say that I am a hothead (sMHS;sSTAS) | 1 | 2 | 3 |
| 17. When I get angry, I get really angry. | 1 | 2 | 3 |
| 29. When I get angry, I feel like smashing things. | 1 | 2 | 3 |
| 41. It makes my blood boil to have someone make fun of me. (BD) | 1 | 2 | 3 |

Duration:

| | | | |
|---|---|---|---|
| 6. When I get angry, I stay angry for hours. (MAI) | 1 | 2 | 3 |
| 18. When I think about something that makes me angry, I get even more angry. (sDRS) | 1 | 2 | 3 |
| 30. Some people get angry and get over it, but for me it takes a long time. | 1 | 2 | 3 |

42. When I get mad at someone, I give them the silent treatment. (sBD) 1 2 3

Somatic Activation/Tension:

7. My muscles feel tight and wound-up. 1 2 3
 19. I feel agitated and unable to relax. 1 2 3
 31. I have trouble sleeping or falling asleep. (FAS) 1 2 3
 43. My head aches when people annoy me. 1 2 3

Irritability:

8. I walk around in a bad mood. (SDQ) 1 2 3
 20. I get annoyed when someone interrupts me. (sCM) 1 2 3
 32. A lot of things bug me. 1 2 3
 44. It bothers me when someone does things the wrong way. 1 2 3

III. Behavioral Domain

Impulsive Reaction:

9. My temper is quick and hot. 1 2 3
 21. If someone bothers me, I react first and think later. 1 2 3
 33. I have a fiery temper that arises in an instant. 1 2 3
 45. When I get angry, I fly off the handle before I know it. 1 2 3

Verbal Aggression:

10. When someone yells at me, I yell back at them. 1 2 3
 22. If I don't like somebody, I'll tell them off. (ASR) 1 2 3
 34. Some people need to be told to "get lost". 1 2 3
 46. When I start to argue with someone, I don't stop until they do. 1 2 3

Physical Confrontation:

11. I have had to be rough with people who bothered me. (sCM) 1 2 3
 23. When I get mad, I can easily hit someone. 1 2 3
 35. If someone hits me first, I hit them back. (BD) 1 2 3
 47. Some people need to get knocked around. 1 2 3

Indirect Expression:

12. I feel like smashing things. (ASR) 1 2 3
 24. When I get angry, I throw or slam things. 1 2 3
 36. When I get angry at someone, I take it out on whomever is around. (MAI) 1 2 3
 48. If someone makes me angry, I'll tell other people about them. 1 2 3

PART B

| | Not at all angry | A little angry | Fairly angry | Very Angry |
|---|---------------------|-------------------|-----------------|---------------|
| <i>Disrespectful Treatment:</i> | | | | |
| 1. Being criticized in front of other people for something that you have done. (sNPI) | 1 | 2 | 3 | 4 |
| 6. You are in line to get something, and someone cuts in front of you. (sNPI) | 1 | 2 | 3 | 4 |
| 11. Having someone look over your shoulder while you are working. | 1 | 2 | 3 | 4 |
| 16. Someone making fun of the clothes you are wearing. (NPI) | 1 | 2 | 3 | 4 |
| 21. Someone looks through your things without your permission. | 1 | 2 | 3 | 4 |
| <i>Unfairness/Injustice:</i> | | | | |
| 2. Seeing someone bully another person who is smaller or less powerful. (sNPI) | 1 | 2 | 3 | 4 |
| 7. Not being given recognition for doing good work. (sNPI) | 1 | 2 | 3 | 4 |
| 12. Being overcharged by someone for a repair. (sNPI) | 1 | 2 | 3 | 4 |
| 17. Being singled out for correction, when someone else doing the same thing is ignored. (sNPI) | 1 | 2 | 3 | 4 |
| 22. Being accused of something that you didn't do. | 1 | 2 | 3 | 4 |
| <i>Frustration/Interruption:</i> | | | | |
| 3. You are trying to concentrate, but someone keeps making noise. (sNPI) | 1 | 2 | 3 | 4 |
| 8. You are watching a TV program, when someone comes along and switches the channel. (sNPI) | 1 | 2 | 3 | 4 |
| 13. You need to get somewhere in a hurry, but you get stuck in traffic. (sNPI) | 1 | 2 | 3 | 4 |
| 18. You make arrangements to do something with a person who backs out at the last minute. | 1 | 2 | 3 | 4 |
| 23. You lend something to someone, and they fail to return it. | 1 | 2 | 3 | 4 |
| <i>Annoying Traits:</i> | | | | |
| 4. People who act like they know it all. (sRI) | 1 | 2 | 3 | 4 |
| 9. People who don't really listen when you talk to them. | 1 | 2 | 3 | 4 |
| 14. People who think that they are better than you are. | 1 | 2 | 3 | 4 |
| 19. People who think that they are always right. (NPI;sRI) | 1 | 2 | 3 | 4 |
| 24. Someone who is always contradicting you. (sRI) | 1 | 2 | 3 | 4 |
| <i>Irritations:</i> | | | | |
| 5. Being slowed down by another person's mistakes. (sSTAS) | 1 | 2 | 3 | 4 |
| 10. Getting cold soup or cold vegetables for dinner. | 1 | 2 | 3 | 4 |
| 15. You are carrying a cup of coffee, and someone bumps into you. (sNPI) | 1 | 2 | 3 | 4 |
| 20. Just after waking-up in the morning, someone starts giving you a hard time. | 1 | 2 | 3 | 4 |

Manual for the Treatment Readiness,
Responsivity, and Gain Scale: Short Version
(TRRG:SV)

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INTRODUCTION

Treatability is a multi-faceted concept that we consider encompassing an individual's readiness for and responsiveness to treatment intervention. It is suggested that the assessment of treatability be an integral component of correctional planning to facilitate the appropriate placement of offenders into correctional programs.

The purpose of this scale is to assist staff to systematically assess an offender's readiness and responsiveness to treatment and to subsequently measure the degree to which gains have been made. These items have been selected based on a review of the relevant literature and discussions with clinicians and program staff.

The items that comprise the TRRG:SV were selected based on a factor analysis with the original scale of 50 items in a sample of 265 male offenders entering a cognitive skills program. Principle components analysis revealed one underlying factor for both the treatment readiness and responsiveness domain. A reduction in items from 22 to 8 reduced the overall consistency for both domains from .90 to .82, still within the range for excellent internal consistency.

Each item has a specific behavioral anchor and description to assist in scoring. Questions for each item are provided simply as a guide for those staff wishing the format of a semi-structured interview. We recommend the questions simply be incorporated into existing interview-based assessment strategies.

Individual items are summed in order to provide a total score that represents an individual's readiness and responsiveness for treatment. A higher score on this scale reflects greater readiness or responsiveness for treatment while a lower score reflects less readiness or responsiveness for treatment.

The construct of treatment readiness and responsiveness are not conceptualized as trait specific but rather as a process that reflects a continuum of change. For this reason it is recommended that the ratings be completed prior to treatment and at the conclusion of the treatment program. These ratings, to be completed by program staff, may then be used as a measure of change. Although it is impossible to predetermine how much contact is required before you can complete the pre-treatment assessment, it may be that up to 3 sessions will be necessary.

Treatment readiness and responsiveness are critical in the process of determining treatment needs and placement. For instance, offenders who score low on readiness and responsiveness may benefit from a treatment primer session in order to prepare them for a treatment program, maximizing the potential treatment gains.

Treatment Readiness

Treatment readiness is a domain that captures an individual's willingness to engage in the treatment process. For some, they see themselves as having very few problems that require therapeutic intervention and do not have any desire to make changes. These individuals tend to be forced into treatment and are reluctant to put forth any effort into changing. Others may be aware of the problems in their lives but are hesitant to make a commitment to change. On the other extreme are those who are committed to changing and are enthusiastic about modifying their behaviors.

The treatment readiness domain is intended to operationalize this continuum in an effort to assist clinicians in determining treatment placement. This domain has excellent internal consistency producing an alpha of .83 in a sample of 265 male offenders entering a cognitive skills program. The items produced factor loadings in the very good to excellent range (.60 to .77) with a mean of .67.

Treatment Responsivity

The items that comprise this domain have been selected to represent potential responsivity factors in offender's compliance with, and response to, therapeutic intervention and treatment programs in general. These items are intended to tap into the offender's general interpersonal style and are not necessarily specific to treatment. These items include callousness, denial, procrastination, intimidation, power and control, rigidity, victim stance and procriminal views.

The treatment responsivity domain has excellent internal consistency producing an alpha of .82 in a sample of 268 male offenders entering a cognitive skills program. The items comprising the treatment responsivity domain produced factor loadings in the very good to excellent range (.59 to .75) with a mean of .67.

Treatment Gain

The items incorporated into this domain represent a combination of knowledge, participation and competencies. Although many programs include specific measures of gain for particular program targets, the purpose of this domain is to provide an overall estimate of an offender's performance in a correctional program. Currently, data do not exist to support the predictive validity of this domain. Until such data are available, however, the items provide a useful and defensible overview to utilize in a post-treatment report.

Norms

Incarcerated men offender. Among incarcerated men offenders in cognitive skills program (n = 58 to 268) the following scores were obtained:

| Domain | N | Mean | SD | Range |
|---------------------------------------|-----|-------|------|-------------|
| <i>Treatment Readiness:</i> | | | | |
| Readiness - Pre | 268 | 12.54 | 5.03 | 1 to 24 |
| Readiness - Post | 207 | 16.61 | 4.95 | 3 to 24 |
| Readiness - Change | 207 | 3.59 | 3.58 | -11 to 14.5 |
| <i>Treatment Responsivity:</i> | | | | |
| Responsivity - Pre | 268 | 13.68 | 4.61 | 2 to 24 |
| Responsivity - Post | 207 | 17.21 | 4.29 | 2 to 24 |
| Responsivity - Change | 207 | 3.05 | 3.73 | -12 to 14.5 |
| <i>Treatment Gain:</i> | | | | |
| Total Gain | 58 | 15.15 | 4.84 | 7 to 24 |

Incarcerated women offenders. Among incarcerated women offenders in a cognitive skills program (n = 29) the following scores were obtained:

| Domain | N | Mean | SD | Range |
|---------------------------------------|----|-------|------|-------------|
| <i>Treatment Readiness:</i> | | | | |
| Readiness - Pre | 29 | 16.90 | 4.01 | 6.5 to 22.5 |
| Readiness - Post | 29 | 21.86 | 2.57 | 14 to 24 |
| Readiness - Change | 29 | 4.97 | 2.94 | 1 to 11 |
| <i>Treatment Responsivity:</i> | | | | |

| | | | | |
|---------------------------|----|-------|------|-----------|
| Responsivity - Pre | 29 | 17.12 | 3.03 | 11 to 23 |
| Responsivity - Post | 29 | 21.72 | 2.18 | 16 to 24 |
| Responsivity - Change | 29 | 4.60 | 2.30 | 1 to 11.5 |
| Treatment Gain: | | | | |
| Total Gain | 29 | 18.84 | 3.63 | 10 to 24 |

Incarcerated sex offenders. Among incarcerated sex offenders prior to participating in sex offender treatment (n = 39), the following pre-treatment scores were obtained:

| Domain | N | Mean | SD | Range |
|--------------------------------|----------|-------------|-----------|--------------|
| Treatment Readiness: | | | | |
| Rapists | 12 | 9.00 | 6.03 | 0 to 19 |
| Child molester | 12 | 11.83 | 6.19 | 1 to 22 |
| Incest offenders | 12 | 9.67 | 6.12 | 0 to 18 |
| Total | 39 | 9.87 | 6.00 | 0 to 22 |
| Treatment Responsivity: | | | | |
| Rapists | 12 | 9.25 | 4.85 | 1 to 17 |
| Child molesters | 12 | 13.17 | 5.04 | 4 to 22 |
| Incest offenders | 12 | 13.33 | 4.31 | 6 to 19 |
| Total | 39 | 11.49 | 5.11 | 1 to 22 |

TREATMENT READINESS: SHORT SCALE

1. Problem Recognition

This item assesses the offender's appraisal of their current situation. This is assessed in terms of their understanding and ownership of their problems. Those who accept full responsibility without rationalization would score a "3". Those who deny responsibility would score a "0".

Possible Questions:

- Did you hear a victim impact statement read in court? If so, how did that make you feel?
- How do you feel about yourself? Would you say you are satisfied or unsatisfied with who you are?

| | |
|---|---|
| 0 | Views the problem is solely the result of others or circumstances (no ownership). |
| 1 | Views the problem as mainly the result of others or circumstances (marginal ownership). |
| 2 | Views self as a part of the problem (some ownership). |
| 3 | Views self as the major part of the problem (ownership). |

2. Macro Treatment Benefits

This item is intended to tap into an offender's views regarding the overall benefits of participating in treatment. An offender who describes the long term benefits (e.g., lifestyle stability such as employment, relationships, no crime) *and* short term benefits (e.g., earlier release, fewer release conditions) of treatment would score a "3". Those who are unable to generate any benefits would score a "0".

Possible Questions:

- What do you think will happen if you do not participate in treatment? [or if you drop out]
- If you finish this treatment program, what types of benefits might you gain?

| | |
|---|---|
| 0 | Sees no benefits of treatment. |
| 1 | Able to identify at least one long term <i>and</i> short term benefit of treatment. |
| 2 | Considers <i>limited</i> long term and short-term benefit of treatment. |
| 3 | Accurately considers long term <i>and</i> short term benefits of treatment. |

3. Micro Treatment Benefits

This item addresses an offender's views about treatment. Those who describe treatment as beneficial to themselves *and* to others (e.g., family, friends, community) would score a "3". Those who cannot identify any benefits would score a "0".

Possible Questions:

- Why do you think someone would participate in a treatment program?
- What are your views about treatment in general? Do you think people benefit from it and how?

| | |
|---|---|
| 0 | Not able to perceive benefits of treatment. |
|---|---|

- | | |
|---|---|
| 1 | Perceives treatment as only beneficial for self. |
| 2 | Perceives treatment as beneficial for self <i>or</i> others. |
| 3 | Perceives treatment as beneficial for self <i>and</i> others. |

4. Treatment Distress

This item is intended to address an offender's state of emotional distress regarding treatment. Offenders whose commitment to treatment is accompanied or prompted by emotional distress (notably anxiety or depression) warrant a score of "3", but only if they recognize the distress. Those who appear emotionally unconcerned and indifferent about the need for change score "0".

Possible Questions:

- How does the idea of participating in treatment make you feel? [If you are in treatment how did you feel before beginning treatment]
- What motivated you to consider participation in a treatment program? [looking for distress cues not cost/benefits]

- | | |
|---|---|
| 0 | Indifferent (absence of emotional distress) and sees no need for treatment. |
| 1 | Distressed, but does not motivate to consider change. |
| 2 | Distress motivates them to consider changing. |
| 3 | Evidence of emotional distress and wants to participate treatment. |

5. Treatment Goals

Goal setting assesses the ability to identify and realistically create treatment goals. This item considers the knowledge and skills necessary for treatment gain. For example, someone with a lifelong history of substance abuse would score a "0" if their goal was abstinence without lapses following a 4 month program and a "3" if they are realistic about the new skills and knowledge necessary for treatment gain.

Possible Questions:

- If you were to participate in a treatment program what would you say were the issues you would need to address? How would you go about addressing these issues?
- How would you describe the treatment process? [try to get at whether they think that showing up for group will suffice or that more work is required than that]

- | | |
|---|---|
| 0 | Unable to set realistic treatment goals. |
| 1 | Unaware of skills <i>and</i> knowledge required for treatment gain. |
| 2 | Somewhat able to set realistic treatment goals. |
| 3 | Able to set realistic treatment goals. |

6. Treatment Behaviors

This item assesses the offender's motivation for treatment. Behavioral indication of good motivation should reflect, where applicable, timely attendance at interviews and/or groups;

homework completion; compliance with prior treatment; and/or positive comments about treatment as a process not an outcome. More than one of these must apply to warrant a score of “3”.

Possible Questions:

- Have you participated in treatment before? If so, what is different this time?
- How did you find out about treatment? [i.e., what steps did he/she take in order to pursue treatment?]

| | |
|----------|--|
| 0 | Consistent behavioral indication of poor motivation. |
| 1 | Inconsistent indication of good motivation. |
| 2 | Somewhat inconsistent indication of good motivation. |
| 3 | Consistent behavioral indication of good motivation. |

7. Behavioral Congruency

This item highlights the importance of an offender’s verbal statements *and* their actions regarding treatment. If an offender has not previously participated in treatment then this item refers to behavioral consistency outside of treatment (e.g., meets caseworker, etc...). Offenders who state they are motivated towards treatment, but show incongruence by poor attendance (late or infrequent), failure to complete homework, and/or state low motivation to other staff or offenders, warrant a score of “0”. Those who consistently follow through would score a “3”.

Possible Questions:

- [If you have participated in treatment before] How would the counselor or other group members describe you with respect to your participation? Did you go to all the sessions?
- [If you have not participated in treatment] How would your caseworker describe you? Have you attended all planned meetings with him/her?

| | |
|----------|--|
| 0 | Verbal and behavioral expressions of motivation are inconsistent. |
| 1 | Often inconsistent between stated motivation and actions. |
| 2 | Somewhat inconsistent between stated motivation and actions. |
| 3 | Complete congruence between verbal and nonverbal expressions of good motivation. |

8. Treatment Support

This item assesses the degree of support for change by others significant to the offender. **Allow the offender to determine who is important to them (preferably family, friends, employer, or clergy) and then probe for degree of support from them. Those having no support would score a “0”. Those reporting strong support would score “3”.**

Possible Questions:

- Who would you say is the most significant person (s) in your life?**
- What kind of support do you want from this person (s)? Would you say they are providing this support for you? How do they demonstrate this support?**
- Does this person (s) believe you can change?**

| | |
|----------|--|
| 0 | Reports <i>no</i> external support for changing. |
|----------|--|

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| | |
|---|---|
| 1 | Reports <i>minimal</i> external support for changing. |
|---|---|

| | |
|---|--|
| 2 | Reports <i>moderate</i> external support for changing. |
|---|--|

| | |
|---|--|
| 3 | Reports <i>strong</i> external support for changing. |
|---|--|

**Treatment Readiness
Score Sheet**

Circle one: **Pre** **Post** **Change**

1. Problem Recognition

-3 -2 -1 0 +1 +2 +3

2. Macro Treatment Benefits

-3 -2 -1 0 +1 +2 +3

3. Micro Treatment Benefits

-3 -2 -1 0 +1 +2 +3

4. Treatment Distress

-3 -2 -1 0 +1 +2 +3

5. Treatment Goals

-3 -2 -1 0 +1 +2 +3

6. Treatment Behaviors

-3 -2 -1 0 +1 +2 +3

7. Behavioral Congruency

-3 -2 -1 0 +1 +2 +3

8. Treatment Support

-3 -2 -1 0 +1 +2 +3

TOTAL

CHANGE

TREATMENT RESPONSIVITY: SHORT SCALE

1. Callousness

This item describes offenders who have no concept of the injury they have caused others. Generally, they lack concern for others except when it can serve them. They present an air of ownership of others, with an expressed right to do as they please with impunity. Those who always put their own needs above those of others would score a “0”. Those who are able to be other centered would score a “3”.

Possible Questions:

- Can your family depend on you? Give an example of your dependability.
- You are in the desert and have one drink left...how would you feel about sharing it with your cellmate? With a friend? With a family member?

| | |
|----------|---|
| 0 | Uses people to meet own needs. |
| 1 | Indifferent about the needs of others. |
| 2 | Will consider the needs of family or close friends. |
| 3 | Takes others' needs into consideration. |

2. Denial

This item measures the extent to which an offender rationalizes their criminal behaviour. Those scoring “0” deny their problems. These excuses can range from external reasons (e.g., drugs, alcohol, and social pressure) to internal concerns (e.g., bad childhood, past victimization, mental illness). Those offenders who fully recognize the extent of their problems and assume full responsibility would score a “3”.

Possible Questions:

- What part do you think you played in the present offense?
- What would you say is your biggest problem (s)? Are you concerned at all about this problem? How do you plan to deal with this problem?
- What does the police report say about the offenses? Do you agree with what was said in the report? Why/why not?

| | |
|----------|--|
| 0 | Denies he/she has a problem. “It’s everyone else’s fault”. |
| 1 | Refuses to accept they have a problem. |
| 2 | Accepts they have a problem, with reservations. |
| 3 | Assumes responsibility. |

3. Procrastination

This item measures an offender’s ability to set and meet goals in general. Those showing lack of effort, inability to follow through on plans, and lacking goals would be scored a “0”. Those who are very task oriented and make very specific goals would score a “3”. Being resistant, unwilling to do homework, and generally making excuses for failing to meet obligations should also be considered.

Possible Questions:

- Would others describe you as reliable? Give an example.
- How would friends describe your ability to follow through on plans?
- What are your goals in life?
- Give an example of a goal you set and achieved.

| | |
|----------|--|
| 0 | Doesn't follow through on plans. |
| 1 | Rarely follows through on plans. |
| 2 | Occasionally follows through on plans. |
| 3 | Very task oriented. |

4. Intimidation

This item considers the intensity and expression of anger in interpersonal situations. Often their emotional expression of anger is excessive for the situation showing both an inability to evaluate the situation and poor self-control. Those who use their overt expression of anger to control and manipulate others would score a "0". Those who acknowledge that anger is a normal emotion and appropriately expresses it would score a "3".

Possible Questions:

- Have you ever felt so angry with someone that you felt like hitting them? Did you?
- Have others described you as having a 'short fuse'?
- Has anyone ever called you a 'bully'? Why?
- What do you do when you really want your own way?

| | |
|----------|---|
| 0 | Uses anger to intimidate others to get his way. |
| 1 | Willing to let anger help them meet their goals. |
| 2 | Aware and concerned about negative impact of his anger on others. |
| 3 | Doesn't intimidate others. |

5. Power and Control

This item is characterized by the degree to which the offender expresses entitlement when dealing with others. Their concept of fairness is solely egocentric, they respond poorly to criticism, and they must win at all costs. Offenders who score "3" would be described as respectful and fair, without a personal agenda. Those who view life as unfair and feel they own others would score a "0".

Possible Questions:

- How do you feel about the sentence you were given? Do you think it was fair?
- Has life been fair to you or do you feel you got the short end of the stick?
- Would you rip someone off you did not know? Someone you knew?

| | |
|----------|--|
| 0 | When angered, controlled by views of entitlement and unfairness. |
| 1 | Feels life is unfair, so take what you can. |
| 2 | Feels life is unfair, look out for yourself. |

3 Tries to be fair in resolving disputes.

6. R Rigidity

This item considers an offender's ability to effectively problem solve. Those with the demonstrated ability to generate alternative solutions and be flexible would score "3". Those who repeat ineffective solutions to problems and refuse to consider alternate solutions would score a "0". This item should not be restricted to criminal behavior.

Possible Questions:

- Are there any concerns you have at the moment? How have you tried to deal with this problem? Are there any other ways of approaching this problem that you have yet to try?
- What kind of things have you tried in the past to stay out of crime? Are there any others things you have yet to try?

0 Rigid, sticks with a solution, even when it doesn't work.

1 Begins with an old solution, but can evaluate.

2 Considers new solution, but falls back on old ways.

3 Flexible, willing to try other things.

7. Victim Stance

This item describes offenders who are characterized by self-pity and present as being victims. Those offenders who appear unwilling to accept their culpability and look to others for support and to improve their situation would score a "0". Those who don't feel sorry for themselves and are able to learn from the consequences of their behaviors would score a "3".

Possible Questions:

- How do you feel about your current situation?
- How can you improve your situation?
- What are you willing to do to make things better for you?

0 Wants others to fix it for them.

1 Just wants things to be better.

2 Willing to accept consequences of prior behaviour.

3 Accepts consequences and learns from them.

8. Procriminal Views

This item is intended to distinguish those offenders whose investment in crime is high from those who are essentially prosocial but whom have infrequently committed a crime. Those considered criminally-oriented ("0") are reflected in their pride and self-righteousness in criminal thinking and values. This would be in contrast to those whose crime is situational and who lack criminal attitudes ("3").

Possible Questions:

- ❑ Tell me what you think about what you did?
- ❑ How you think others would view your criminal behavior?
- ❑ How would you compare yourself to others in here (e.g., cell mate) with respect to what you did? Would you say your crime is more or less worse and why?

| | |
|----------|--|
| 0 | Presents pride in criminal views. |
| 1 | Criminal views present, but mainly due to lifestyle. |
| 2 | Some prosocial views noted. |
| 3 | Presents mainly prosocial views. |

Treatment Responsivity Score Sheet

Circle One: Pre Post Change

1. Callousness

-3 -2 -1 0 +1 +2 +3

2. Denial

-3 -2 -1 0 +1 +2 +3

3. Procrastination

-3 -2 -1 0 +1 +2 +3

4. Intimidation

-3 -2 -1 0 +1 +2 +3

5. Power and Control

-3 -2 -1 0 +1 +2 +3

6. Rigidity

-3 -2 -1 0 +1 +2 +3

7. Victim Stance

-3 -2 -1 0 +1 +2 +3

8. Procriminal Views

-3 -2 -1 0 +1 +2 +3

TOTAL

CHANGE

TREATMENT GAIN: SHORT SCALE

1. Evidence of Increased Skills From Program

This item considers the specific skills the treatment program is intended to impart to the offender. Again, A higher score indicates the offender can do more than simply repeat in group that which has been demonstrated in previous group sessions.

| | |
|---|--|
| 0 | None |
| 1 | Rote repetition of skill(s) |
| 2 | Accommodates to reflect broader understanding |
| 3 | Shows/reports successful skill use in other situations |

2. Disclosure in Program

Disclosure is intended to consider the extent to which the offender shares information. Since offenders sometimes differ with respect to their comfort and willingness to share in group versus individual sessions, both should be considered when scoring this item. The highest score is reserved for those offenders who freely discuss issues and who also share incriminating information, recognizing such disclosures reflects treatment engagement and gain.

| | |
|---|--|
| 0 | Resistant (denies, refuses to participate, obstructionist) |
| 1 | Marginal (uncommunicative) |
| 2 | Satisfactory (opens up in group) |
| 3 | Full (candid, revealed <i>extra</i> information in group) |

3. Application of Knowledge

This item considers the extent to which an offender is able to consider and apply knowledge from the program to his or her own situation, not just other group members. The highest scoring is reserved for those offenders who are able to apply the information in a reflective and systematic manner.

| | |
|---|---|
| 0 | Poor (unable to apply) |
| 1 | Able to apply to others' situation |
| 2 | Able to apply to own situation and others' |
| 3 | Able to be reflective and problem-solve in many situations (insightful) |

4. Application of Skills

This item considers the range of skills gained through group participation. These skills need not be restricted to role-play situations, however, this may be the most convenient for staff to consider.

| | |
|---|--|
| 0 | Poor (unable to apply) |
| 1 | Can role play as confederate only |
| 2 | Can participate as self in role play |
| 3 | Applies role play skills to other situations |

5. Depth of Emotional Understanding of Program Content

This item is intended to ensure the offender is emotionally connected to the program content and treatment change requirement. The offender who appears to be simply going through the motions and saying the right words without emotional connectedness would receive a score of '0'.

| | |
|---|---|
| 0 | Poor (no emotional commitment to treatment) |
| 1 | Marginal (simply saying words) |
| 2 | Satisfactory (some emotional investment) |
| 3 | Very good (treatment is an emotional but rewarding challenge) |

6. Appropriateness of Behaviour in Group

This item focuses on an offender's failure to abide by certain rules and ignores personal boundaries of staff and other group members when these have been brought to the individual's attention. For the purpose of scoring this item it is necessary to distinguish between those offenders whose inappropriateness is due to skill deficits or malicious intent. Again, those scoring highest would be effective role models by challenging peers whose behavior exceeds boundaries.

| | |
|---|---|
| 0 | Poor (asked intrusive, personal questions of staff, verbally abusive) |
| 1 | Marginal (sarcastic remarks towards staff and offenders) |
| 2 | Satisfactory (no problems within group) |
| 3 | Very good (rebuts inappropriate behaviour of others) |

7. Participation

This item is an overall estimate of an offender's participation over the duration of the program. It should consider group behavior, attendance, timeliness of homework completion, and quality of work done.

| | |
|---|--|
| 0 | Poor (minimal effort; begrudgingly attended) |
| 1 | Marginal (did not actively participate in a positive manner) |
| 2 | Satisfactory (did what was required, but no more) |
| 3 | Very good (completed all assignments, active in group, asked for extra work) |

8. Therapeutic Alliance

This item considers the relationship between the offender and program staff. Those offenders who score high will demonstrate an attachment to the therapist, regardless of the nature of challenges throughout the treatment program or the recommendations contained in the final report. What is to be avoided is simply rating offenders based on their response to their treatment report. Rather, this item attempts to determine if there was any kind of connection or engagement between the offender and therapist.

| | |
|---|-----------------------------------|
| 0 | Poor (confrontational, resistant) |
|---|-----------------------------------|

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| | |
|---|---|
| 1 | Marginal (perfunctory disclosure, still us versus them views) |
| 2 | Satisfactory (good disclosure, sense of cooperation with therapist) |
| 3 | Very Good (evidence of emotional attachment to therapist) |

***Treatment Gain
Score Sheet***

Circle One: Pre Post Change

- | | | |
|----|---|----------------------|
| 1. | Evidence of Increased skills From Program | <input type="text"/> |
| 2. | Disclosure in Program | <input type="text"/> |
| 3. | Application of Knowledge | <input type="text"/> |
| 4. | Application of Skills | <input type="text"/> |
| 5. | Depth of Emotional Understanding of Program Content | <input type="text"/> |
| 6. | Appropriateness of Behavior in Group | <input type="text"/> |
| 7. | Participation | <input type="text"/> |
| 8. | Therapeutic Alliance | <input type="text"/> |

TOTAL

Comments:

EVENTS INVENTORY

Please check any of the following events that have occurred while you've been in this group:

| <u>Event</u> | <u>How long ago? (D)ays, (W)eeks, (M)onths, (Y)ears</u> |
|---|---|
| ___ Death of family member or close friend | ___ D / ___ W / ___ M / ___ Y |
| ___ Breakup with spouse or significant others | ___ D / ___ W / ___ M / ___ Y |
| ___ Bad news from home (other than death or breakup) | ___ D / ___ W / ___ M / ___ Y |
| ___ Verbal or Physical Argument/fight (w/ inmate) in Prison | ___ D / ___ W / ___ M / ___ Y |
| ___ Verbal or Physical Argument/fight (w/ staff) in Prison | ___ D / ___ W / ___ M / ___ Y |
| ___ Court Sentencing, Parole Hearing, or additional charges | ___ D / ___ W / ___ M / ___ Y |
| ___ Drug and or alcohol use | ___ D / ___ W / ___ M / ___ Y |
| ___ Other stressful event | ___ D / ___ W / ___ M / ___ Y |

SUCCESS INVENTORY

Definition of Succeed: *To accomplish what you attempt or intend to do; to thrive, prosper, or grow. To pass, graduate, move, or be promoted to the next phase or level successfully.*

Please circle the correct response:

1. Have you ever been told you were not going to succeed when you were growing up? **Yes / No**
2. Did you succeed in elementary school? **Yes / No**
3. Did you succeed in middle school / junior high? **Yes / No**
4. Did you succeed in high school? **Yes / No**
5. Have you ever failed a grade/ **Yes / No** If yes, which grade? _____
6. Have you ever had trouble with reading and writing? **Yes / No**
7. Have you ever been told you had a learning disability? **Yes / No** If yes, at what age? _____
8. Have you ever played on an organized school sports team? **Yes/ No**
9. Were you ever denied the chance to play on an organized school sports team? **Yes / No**
10. Were you told you were loved as a child? **Yes / No**
11. If you were told you were loved, how often was it? **Often/Sometimes/At Special Times/Rarely**
12. Have you ever been suspended or kicked out of school? **Yes / No** If yes, what grade(s)? _____
11. Did you ever have reason to distrust a teacher? **Yes / No**

Please check all that apply:

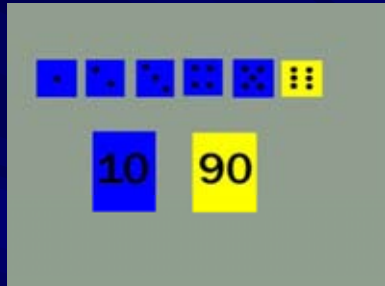
- ___ I have been in treatment programs before in this prison.
- ___ I have successfully completed treatment programs in this prison.
- ___ I am in this treatment group because I want to be.
- ___ I hope to benefit from the information I learn in this treatment group.
- ___ I am in this treatment group for something to do during the day.
- ___ I am in this treatment group to please my Case Manager, the Parole Board, or my family.
- ___ I have been kicked out of treatment groups in the past.
- ___ I believe I will succeed in this treatment group.

How long have you been on the waiting list for this group? ___ Weeks / ___ Months / ___ Years

APPENDIX II

Neuropsychological Instruments

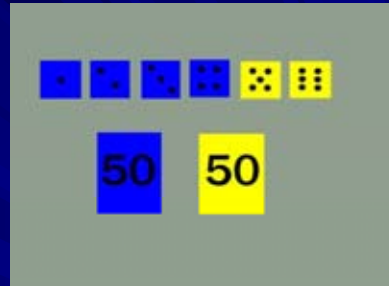
Cambridge Decision Making Task (CDMT)



Scenarios:

1. Highest Risk – 5 blue faces:1 yellow face
2. Moderate Risk - 4 blue faces:2 yellow faces
3. Low Risk - 3 blue faces: 3 yellow faces

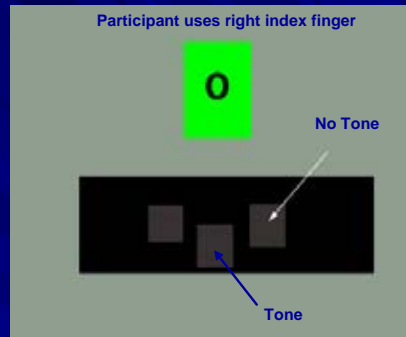
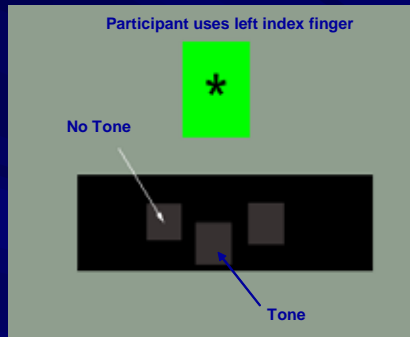
Blue bet amount is always less (i.e., safer) except when the bet amounts are 50/50.



Game IQ: To control for participant's understanding of and engagement in the game.

- 4 blue faces: 2 yellow faces
- 50/50 bet

Stop Signal Task (SST)



3 Conditions:

- Baseline – No tone presented, 36 trials
- Block 1 – Tone distracter presented, 48 trials
- Block 2 – Tone distracter presented, 48 trials

Tone trials consist of “easy” and “hard” tone distracters

- Easy – Tone displayed immediately after visual stimulus is presented
- Hard – Tone displayed a few milliseconds after visual stimulus is presented

Facial Expression Task



fear happiness sadness anger surprise disgust

STROOP Color/Word TASK



Select Color



Select Color



Select Color