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ANTISOCIAL PERSONALITY AND SUBSTANCE USE DISORDERS:
EFFECT ON CRIMINAL CAREER AND RECIDIVISM

by

FRANCES M. HOBBS, B.A., M.C.A.

A thesis submitted to
the Faculty of Graduate Studies and Research
in partial fulfilment of
the requirements for the degree of

Master of Arts

Department of Psychology

Carleton University
Ottawa, Ontario
December 1991

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FRANCES M. HOBBS, B.A., M.C.A.

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Thesis Supervisor

Thesis Supervisor

Chair, Department of Psychology

Carleton University
December 1991

Abstract

A sample of 327 male inmates with and without lifetime antisocial personality disorder according to the DSM-III were compared to determine to what extent their criminal careers and release outcomes were associated with their personality and concurrent substance use disorders. Loglinear analysis results indicated a significant third order association between substance use disorder, personality disorder and prior incarceration. Neither personality disorder nor substance use disorder was associated with prior conviction or current conviction for a violent offense. When inmates' post-release behaviour was assessed, recidivism, defined as a conviction for a new offence and/or the violation of release conditions, was associated with substance use disorder but not antisocial personality disorder. The construct of antisocial personality disorder as defined in the DSM-III suggests that antisocial individuals have longstanding careers of continuous and chronic criminality and a disregard for the well being of others. The fact that antisocial inmates were not more at risk of recidivism in this study calls into question the construct validity of the antisocial personality disorder criteria, its usefulness as a diagnostic category with inmates and its ability to predict recidivism.

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The Mental Health Survey conducted by the Correctional Service of Canada (CSC) in 1988 sought to determine the incidence of psychiatric and behavioural disturbance among a sample of federally incarcerated male inmates. This survey involved the use of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS), designed by Drs. Lee N. Robins and John E. Helzer of the Department of Psychiatry, Washington University School of Medicine, St. Louis. The DIS uses the criteria of the Diagnostic and Statistical Manual, Third Edition (DSM-III) of the American Psychiatric Association (APA).

This review acknowledges the contribution made by the Correctional Service of Canada insofar as this was the first study of its kind conducted in Canada on an offender population. Therefore, it is important to identify this contribution to our understanding of mental health within the general context of mental health and with offenders specifically. Consequently, this review will briefly examine the development and major features of the DIS as well as its application in the U.S. and Canada. Particular attention will be paid to a recurrent finding in inmate and general population studies, namely the co-occurrence of antisocial personality disorder (ASPD) and substance use disorder.

Development of the Diagnostic Interview Schedule (DIS)

Psychiatric epidemiology seeks to understand how mental disorder is distributed in the population. Once armed with this information, clinicians, researchers and administrators can plan for appropriate facilities, develop treatment and prevention strategies, and identify those areas requiring further research.

DSM-III (APA, 1980) is the official diagnostic system used by psychiatrists and other mental health professionals in the United States. It represents a set of guidelines which clinicians can follow to identify and assess severity of mental disorder. It also provides descriptions of clinical problems, their causes (when they can be identified), as well as the context in which they occur. As such, it is useful in planning a treatment program, providing a base for research purposes and offering diagnostic terms and categories which are clearly defined.

A mental disorder is defined in the DSM-III (APA, 1980) manual as:

a clinically significant behavioral or psychological syndrome or pattern that occurs in an individual and that is typically associated with either a painful symptom (distress) or impairment in one or more important areas of functioning (disability). In

addition, there is an inference that there is a behavioral, psychological or biological dysfunction and that the disturbance is not only in the relationship between the individual and society (p.6).

Specific operational criteria are provided for each mental disorder along five axes, the first three of which constitute the official diagnostic assessment. Clinicians can thereby classify a disorder and then use the last two axes to plan treatment and predict eventual outcome (APA,1980).

Although the adoption of the DSM-III represents a major advance for psychiatry, it has been criticized on several grounds. Vaillant (1984) asserts that the creators of the DSM-III have treated diagnostic categories in a dichotomous fashion, ignoring that they reflect a continuum of symptomatology. Furthermore, the DSM-III is guilty of focusing on "surface phenomena" while neglecting clinical changes corresponding to human development. Finally, Vaillant adds that DSM-III's atheoretical position has resulted in diagnoses that ignore various causes and their interplay that lead to disease.

Both Klerman (1984) and Spitzer (1984) have praised the DSM-III for its success and widespread use in classifying psychopathology. Spitzer in particular has responded to Vaillant's remarks. He has acknowledged that although the

categories are presented as dichotomies, it is stated in the introduction to the DSM-III that there is controversy surrounding this issue. It would only prove to be further cumbersome to give severity ratings as recommended by Vaillant (1984). The DSM-III does address the clinical course of disease where a diagnosis can only be made with reference to a prior level of functioning. Finally, Spitzer explains that the DSM-III is purposely atheoretical as the etiology of some diseases is relatively unknown. This allows for modifications to the classification system concurrent with advancements in the field of psychiatry.

To arrive at a diagnosis, the clinician uses the interview to gather information and assess the client's behaviour. Standardized interviews have been created in order to increase the reliability of classifications and determine whether symptoms are present. The Diagnostic Interview Schedule (DIS) is one such structured interview procedure which permits diagnosis according to DSM-III criteria.

The development of the DIS began in 1978 at the request of the National Institute of Mental Health (NIMH) for use in their division of Biometry and Epidemiology Epidemiological Catchment Area Program (ECA). The ECA program's objective was to implement population surveys to determine the prevalence and incidence of psychiatric disorders in the general population. A standardized, reliable diagnostic

tool was therefore imperative. Furthermore, this tool had to be precise in order to be used by the lay interviewer. As large samples were required to provide estimates of psychiatric disorders which, in most cases are rare, the use of clinical interviews conducted by mental health professionals was not feasible (Robins et al., 1985).

In order to make DSM-III diagnoses, the interview would have to identify on a lifetime basis the presence and clinical significance of all symptoms in the DSM-III operational criteria. As well, "it had to ascertain their frequency and severity, their temporal clustering, whether they had occurred in the absence of physical illness or physical conditions that might account for them, and whether other psychiatric disorders are present which might preempt the disorder of interest" (Robins et al., 1985, p.144). The new instrument would have to assess lifetime prevalence by determining the percentage of the population that revealed evidence of a particular disorder at least once in their lifetime. The DSM-III was still in the drafting stage when the plans for the ECA were materializing and no existing instrument covered the DSM-III criteria. A new instrument was therefore required.

A review was undertaken of existing interviews such as the Present State Examination, the Psychiatric Epidemiological Research Interview, the Schedule for Affective Disorders and Schizophrenia, and the Renard

Diagnostic Interview (RDI). The RDI closely met the specifications required: it had undergone considerable pretesting, was self-contained and provided clear questions with follow-up probes to positive answers, thus facilitating use by lay interviewers (Robins et al., 1985). According to Helzer, Robins, Croughan, and Welner (1981), a reliability-validity test of the RDI found little difference between psychiatrists and lay interviewers. The kappa values for all pairs averaged .60, with the highest average reliability (.65) when one interviewer was a psychiatrist and the other a lay person.

Consequently, the creators of the RDI, the Washington University Group, were tasked with the development of the new instrument. This new instrument would preserve the RDI coding system which identified positive symptoms and if negative, why they had been ruled out as psychiatric symptoms. Symptoms pertaining to a physical condition or the ingestion of medicine, alcohol or other drugs would be disregarded. The end product was the NIMH Diagnostic Interview Schedule (Robins et al., 1985).

The DIS covers 43 DSM-III diagnoses and can be administered in approximately one to one and a half hours and only requires information supplied by the respondent. No clinical experience is necessary to administer the DIS, however interviewers must complete a one week training course followed by another week of field practice (Robins et

al.,1985).

The structure of the DIS involves closed ended questions with instructions to the interviewer incorporated within the interview itself. A probe flow chart guides the interviewer through a positive response to a symptom and indicates which question is next in the sequence.

Recency estimates are available so the most recent occurrence of the last symptom can be recorded to have occurred within the last two weeks, the last month, the last six months or the last year (Robins et al.,1985).

The field of psychiatry is characterized by considerable disagreement over the concepts of mental disease (Martin,1985). For this reason, efforts have been made toward developing standardized assessment tools in order to improve agreement among psychiatrists. The reliability and validity of any assessment tool have a direct bearing on the issue of agreement. For an interview schedule like the DIS to be reliable, it must provide the same diagnoses over repeated measurements of the same individual. The validity of the DIS is determined by comparing the extent to which it yields diagnoses comparable to an established instrument, which represents the standard (this has been called "procedural validity" Helzer, Robins, Croughan & Welner,1981).

One of the main objectives in the development of the DIS was that it could be administered by a lay interviewer.

For this reason, the validity studies conducted to date have sought to determine the degree of agreement between lay and clinical diagnoses. The clinical or physician's diagnosis has been used as the standard, albeit an imperfect one, against which the lay diagnoses are measured.

The k statistic is used in such studies to "measure the degree to which the agreement between two interviewers differs from chance" (Robins, 1985). Hesselbrock, Stabenau, Hesselbrock, Mirkin and Meyer (1982) examined forty-two patients who had been newly admitted to an alcohol treatment centre. The reliability of the DIS was evaluated using an interviewer-observer design whereby the observer viewed a videotape of the interview and proceeded to rate the subject. The interrater agreement for all diagnostic categories was quite high $k=.94$. Interrater agreement when one interview was conducted by a nonclinician and the other by a clinician was equally high $k=.95$. The results of the DIS interview were then compared to the results obtained using the Schedule for Affective Disorders and Schizophrenia-Lifetime (SADS-L). With respect to alcoholism, major depressive disorder, antisocial personality and drug use disorder, concordance was high between both interviews: antisocial personality $k=.79$, past drug dependence $k=.66$, current drug dependence $k=.72$, past and current alcoholism $k=1.00$.

Helzer et al. (1985) and Robins, Helzer, Croughan and Ratcliff (1981) conducted procedural validity studies of the DIS with a community and clinical sample respectively. The method followed in the Helzer et al. (1985) study was to interview the subject using the DIS and a lay interviewer. A physician who was blind to the preceding lay results, re-interviewed the subject using the DIS while simultaneously scoring his clinical impressions on a DSM-III checklist which served as the standard. A correlation of .73 was found for the mean number of diagnoses per case for lay DIS and physician DIS interviews. Overall agreement for most diagnoses between lay DIS and physician checklists was 90%.

Robins, Helzer, Croughan and Ratcliff (1981) used a test-retest design with one interview conducted by a lay person and a second one by a psychiatrist, both using the DIS. Three out of four positive diagnoses made by the lay interviewers were confirmed by the psychiatrist's diagnoses. For a definite diagnosis of ASPD according to the DSM-III criteria, 60% of cases were confirmed by the psychiatrists diagnoses, for drug abuse/dependence 68% were confirmed and 97% were confirmed for alcohol abuse/dependence.

Reliability can be equated with predictability. "When the variation in an individual's scores over parallel tests is great, this means that the prediction of his or her score on one parallel test from his or her score on another is poor" (Ghiselli, Campbell & Zedeck, 1981). Predictive and

procedural validity were tested by Helzer, Spitznagel and McEvoy (1987) with a physician reexamination six weeks after a lay DIS interview. The initial lay examination was followed a year later by another lay examination. The predictive capabilities of both lay and physician diagnoses were found to be high when measured by follow-up interviews.

Interrater reliability was examined by Helzer et al. (1981) on an in-patient sample using the RDI, the precursor to the DIS. The highest average reliability (K value .65) was obtained when an individual was interviewed once by a lay person and once by a psychiatrist.

A study by Anthony et al. (1985) with a community sample was less favourable, noting significant differences in the one month prevalence rates identified by a lay DIS interview and an independently conducted psychiatric examination using standardized DSM-III diagnoses.

In summary, the majority of the studies briefly reviewed here have found procedural and predictive validity of the DIS in general and clinical populations to be quite acceptable. The diagnostic reliability of the DIS was found to be more than adequate, as would be expected with a standardized instrument. Martin (1985) has pointed out "if there is a very high degree of unreliability of the diagnostic interview for a disorder, the validity of the observations is suspect such that what is diagnosed may not exist, at least not in the sense that it approximates a

definable disease entity"(p.67). The DIS seems to have avoided this, its acceptable level of reliability strongly suggests validity of the disorders it purports to measure.

The DIS has been subject to criticism, most notably its representation of diagnoses as categorical in nature (Mirowsky and Ross, 1989; Swartz, Carroll & Blazer, 1989). Indeed Mirowsky and Ross (1989) have explained that clinicians will learn more from adopting noncategorical assessment and measures. "The greater the number, frequency, and duration of symptoms, the greater the probability of a person "having" major depression (assuming that such a condition exists)"(p.18). Furthermore, meaningful changes in the psychiatric condition risk being undetected within broad categorical distinctions. Klerman (1989) has argued that the categorical system is appealing to clinicians because many of the decisions they make are "binary" in nature: to hospitalize or not to hospitalize. Tweed and George (1989) have agreed that information is lost in a categorical system yet admit that information is also lost in a dimensional system, notably when attention is paid to the sum of responses rather than their patterns.

Doubtless, this debate will continue, despite the fact that it has been clearly stated in the introduction to the DSM-III-R (APA,1987) that "...there is no satisfactory definition that specifies precise boundaries for the concept of "mental disorder" (...) there is no assumption that each

mental disorder is a discrete entity with sharp boundaries (discontinuity) between it and other mental disorders, as well as between it and No Mental Disorder"(p.5-6). Perhaps Tweed and George (1989) have explained it best: the DSM-III should be viewed as a set of hypotheses to be tested and modified in light of research findings, forming the basis of the DSM-III-R and in the near future, the DSM-IV.

Application of the DIS: general population studies

The ECA program in the United States employed the DIS to provide prevalence rates of specific disorders in the community. Additionally, it examined the use of health services, the obstacles to care when a disorder was diagnosed and the relationship between psychiatric disorders and life events. The ECA involved a sample of 3,058 from New Haven, 3,841 from Baltimore and 3,004 from St. Louis. The results suggested that between 29% and 38% of the sample experienced at least one of fifteen disorders in their lifetime. Of particular interest is the prevalence of antisocial personality disorder and substance use in the general population. The ECA program found that in all three sites examined, alcohol abuse/dependence affected between 11% and 16% of respondents while drug abuse/dependence affected only between 5% and 6% of individuals at some time in their lives. In addition, it was noted that when

averaging the rates for all three sites, antisocial personality disorder was characteristic of one individual in forty (Robins et al., 1984).

Application of the DIS: offender populations

A recent innovative use of the DIS has been its use in the psychiatric epidemiological study of prison populations. Although at this time, such studies are few, they nevertheless warrant attention and review, given the important information they may shed on the mental health of inmates and the expected contribution they may have in the area of treatment.

In 1987, the University of Michigan submitted its final report on the prevalence of mental disorders in Michigan prisons to the Michigan Department of Corrections. The impetus behind such a study originated from several sources: first, several disturbances at three major prisons had inspired further research into this area in addition to the 1984 approval received by the US District Court for correctional officials to generate a thorough mental health care strategy for inmates. A sample of 1,240 inmates was selected for this study. Two surveys were conducted to assess the mental health condition of respondents, the first using the DIS administered by trained survey research interviewers with no clinical background, while the second,

smaller in scope, used professional mental health clinicians. The second interview, using the SCID (Structured Clinical Interview for DSM-III-R) was administered to provide the necessary information needed to determine treatment levels (Neighbors et al.,1987).

Without the vital information such a survey would provide, criminal justice officials were hard pressed to determine what psychiatric disorders were present, what treatment was warranted on a large scale and the arrangements necessary to cope with the mentally disordered offender. Furthermore, Neighbors et al. (1987) noted that previous efforts to determine the prevalence of psychiatric disorders often fell short due to inadequate sample sizes and a neglect of interrater reliability issues through the use of unstandardized interview instruments.

The DIS section of the Michigan study on substance abuse limited itself to the rate of alcohol abuse/dependence. The findings indicated that the lifetime prevalence rate (the percentage of the population of interest that showed evidence of a disorder at least once in their lifetime) for alcohol abuse/dependence among Michigan state prison inmates was 46.5%. With respect to antisocial personality disorder, the lifetime prevalence rate was 50.1% (Neighbors et al.,1987). Whether some inmates received a dual diagnosis (antisocial personality and alcohol abuse/dependence) was not mentioned by the authors, however

based on the findings of other studies to be reviewed presently, it is plausible that such cases did exist.

Another American research endeavour which employed the DIS focused on the co-occurrence of antisocial personality disorder and substance abuse (Collins, Schlenger & Jordan, 1988). Findings indicated that 28.3% of the inmates met the criteria for antisocial personality disorder. Not surprisingly, this rate is higher than that found in general population surveys, where lifetime prevalence estimates had ranged from 2.1 % to 3.3% in New Haven, Baltimore and the St. Louis community studies (Robins et al., 1984). Of the inmates who met the criteria for a definite ASPD diagnosis, 21.3% had ASPD and drug and alcohol abuse/dependence diagnoses, 48.2% met the criteria for ASPD and alcohol abuse/dependence (without a drug disorder), only 5% with ASPD had a concurrent drug but no alcohol disorder while 23.7% met the ASPD criteria without concurrent drug and alcohol disorders. It was concluded that subjects diagnosed as antisocial were more likely to have a concurrent substance abuse disorder diagnosis than those not meeting antisocial personality diagnostic criteria. Probing further into the characteristics of this group of inmates, Collins et al. (1988) concluded that substance abuse aggravates ASPD symptomatology since symptoms scores were found to be 15% to 44% higher for those inmates diagnosed with ASPD and concurrent drug/alcohol use disorder compared to those

receiving an ASPD diagnosis without concurrent substance use disorder. Of further interest is the finding that incarceration for a violent offence or drug related offence were not significant discriminators between inmates who had ASPD diagnoses with and without concurrent substance abuse disorder.

A study by Abram (1990) involved the administration of the DIS to 688 jail detainees. The lifetime prevalence rate of antisocial personality disorder was 49.9%, 49.1% for alcohol disorder and 31.1% for drug disorders. A loglinear analysis yielded significant interactions between alcohol and antisocial personality disorder and between drug and antisocial personality disorder. The author concluded that antisocial personality disorder was usually the primary syndrome in a "multiproblem profile" of detainees.

By way of Canadian application of the DIS on offender populations, the DIS was administered in the fall of 1988 to a random sample of 2,175 federally incarcerated male inmates of the Correctional Service of Canada. The objective of this survey was to develop estimates of the incidence of psychiatric and behavioural disturbances among federally incarcerated inmates by region. In-person interviews were conducted by trained interviewers using the DIS. The data were then weighted to provide estimates for all federally incarcerated inmates (Correctional Service of Canada (CSC), 1990).

Concerning the incidence of mental and behavioural disorders, it was estimated from the sample that 75.4% of the total inmate population would meet the diagnostic criteria for antisocial personality disorder, a higher rate than American inmates (50.1% in the Michigan Study by Neighbors et al (1987)). From the sample, it was estimated that 37.8% of the total inmate population met the criteria for antisocial personality disorder and concurrent drug and alcohol abuse/dependence. Twenty percent met the criteria for antisocial personality and alcohol abuse/dependence, 8.5% for antisocial personality and drug abuse/dependence, and 8.8% for antisocial without drug or alcohol abuse/dependence (CSC,1990).

Hodgins and Côté (1990) examined a representative sample of male inmates in the province of Québec using the DIS to establish the prevalence rates of mental disorders. Similar to the results of Neighbors et al. (1987), the lifetime rates of severe drug or alcohol abuse were quite high. Indeed, 50.4% of inmates have abused and/or were dependent on alcohol while 35.6% have abused and/or were dependent on a minimum of one drug. A total of 33.9% have concurrent drug and alcohol abuse problems. Sixty-one percent of Québec inmates were given a diagnosis of ASPD. No data were provided as to the prevalence rates of concurrent ASPD and substance use disorder. In terms of length of incarceration, substance abusing/dependent inmates

were incarcerated for a median total time of 1826 days, while other inmates not receiving this diagnosis had been incarcerated for a median time of 2557 days, a statistically significant difference. No significant difference was noted, however, between substance abusing and other inmates as to average length of time served on current term, 106.0 weeks and 129.8 weeks respectively.

Bland, Newman, Dyck and Orn (1990) conducted a survey of 180 male inmates in Edmonton, using the DIS. Alcohol abuse/ dependence had the highest lifetime prevalence rate (79%), followed by antisocial personality (56.7%) and drug abuse/ dependence (50.6%). All these prevalence rates were found to be significantly greater than expected based on community rates.

Some caution should be exercised in the interpretation and comparison of lifetime prevalence estimates of antisocial personality in the studies reviewed here as the authors do not always indicate whether wide (includes antisocial inmates who have concurrent schizophrenia or mania) or stringent criteria (excludes inmates who have concurrent schizophrenia or mania) are being used.

Other studies: clinical and general population

Findings from studies not using the DIS with both clinical and general population samples have yielded

comparable results to the DIS concerning antisocial personality and substance use disorders. In Robins' (1966) longitudinal study of patients referred to a child guidance clinic, almost half of the men referred for antisocial behaviour as children had some problems with alcohol in adulthood. Drug abuse, however, was found to be practically nonexistent. Lewis, Rice and Helzer (1983) found that antisocial individuals showed an increased risk for alcoholism. Specifically, antisocial individuals were found to have higher prevalence of alcoholism and drug dependence than nonantisocial individuals. Conversely, Ross, Glaser and Stiasny (1988), in their sample of patients from an addiction research and treatment unit, noted that the group of subjects with concurrent alcohol and drug abuse diagnoses (according to the DIS) had the highest rate of antisocial personality disorder compared to groups with no substance abuse or either drug or alcohol abuse only. A general population study by Helzer and Pryzbeck (1988) noted a strong association between alcoholism and antisocial personality disorder, an association which was stronger than that found between antisocial personality disorder and drug abuse/dependence.

Using the DIS, Cadoret, Troughton and Widmer (1984) sought to identify symptoms of underlying antisocial personality in a group of alcoholics (ASPD) and compare their symptoms to alcoholics who had no pre-existing

psychiatric condition (primary alcoholics). The findings point to significant differences between the two groups, namely: the ASPD group had an earlier age of onset for drinking, reported more symptoms of anxiety, depression, mania and schizophrenia as well as more drug abuse and dependence and increased arrests due to drinking when compared to the primary alcoholics. These results were confirmed by Liskow, Powell, Nickel and Penick (1991) who concluded that ASPD alcoholics have a more severe course of alcoholism than primary alcoholics.

Schuckit and Russell (1984) used a structured intake interview whose criteria followed the DSM-III to examine primary alcoholics who were divided into two groups: violent and nonviolent. The violent group displayed significantly more antisocial behaviour as children than the nonviolent group. Furthermore, the violent group also had significantly earlier onset of alcoholism and were more likely to have spent a night in jail due to alcohol problems than the nonviolent group.

With respect to drug abuse, Kosten, Gawin, Rounsaville and Kleber (1986) examined opioid addicts in treatment. Cocaine abusers were found to have a 10% higher rate of antisocial personality disorder than non abusers (30% versus 20%). Arrests were more frequent among the abusers as well as days spent obtaining illegal profits.

A meta-analysis conducted by Schubert, Wolf, Patterson,

Grande and Pendleton (1988) on a total of 39 studies concluded that there is a definite support for an association between antisocial personality, alcoholism and drug abuse. The studies reviewed had been published over an eighteen year period (1965-1983), well before the creation of diagnostic criteria for the disorders in question. Nevertheless, indicators of criminality such as delinquency, truancy and running away were used in the studies reviewed, yielding comparable findings to studies employing the DIS or other structured diagnostic interviews.

Other studies: offender populations

The use of structured interviews other than the DIS reveal that specific psychiatric disorders tend to be overrepresented among inmates compared to the general population. Guze et al. (1969,1974) for example, noted that sociopathy, alcoholism, and drug addiction were the only disorders found more frequently among subjects (convicted male felons) than the general population.

Schuckit, Herrman and Schuckit (1977) examined 199 male prisoners within 24 hours of their arrest by conducting a structured personal interview. Again the most frequent diagnosis was that of antisocial personality in 16% of inmates, alcoholism in 15% and drug abuse in 12%. Those diagnosed with antisocial personality disorder had the

highest rates of combined abuse of drugs and alcohol, approaching the level of severity of those diagnosed as alcoholics and drug abusers.

Antisocial Personality and Substance Use

The literature indicates that many inmates, whether in the U.S. or Canada, qualify to receive the dual diagnosis of antisocial personality and substance use disorder. This finding warrants some review of the research concerning these disorders. Prior to the creation of the DSM-III, the concept of what is now called antisocial personality disorder was greatly influenced by the work of Cleckley (1955) and the McCords (1964). Cleckley emphasized sixteen key personality traits, which include: superficial charm and good intelligence, untruthfulness and insincerity, lack of remorse or shame, inadequately motivated antisocial behaviour, poor judgement and failure to learn by experience. For the McCords, lovelessness and guiltlessness were believed to be the two core characteristics of the psychopath. The work of Robins (1966,1978) stands in contrast to the profile developed by Cleckley and the work of the McCords. Her work was instrumental in the development of the DSM-III's behaviourally based antisocial personality disorder criteria as she had found considerable continuity between childhood conduct disorders and adult

antisocial behaviour.

According to the DSM-III, the main feature of antisocial personality is "a Personality Disorder in which there is a history of continuous and chronic antisocial behaviour in which the rights of others are violated, persistence into adult life of a pattern of antisocial behaviour that began before the age of 15, and failure to sustain good job performance over a period of several years"(APA,1980,p.317-318). It is a disorder characterized by lying, stealing, vandalism, aggressive behaviour and physical cruelty towards others during childhood. Adult behaviour typically reflects the same pattern, with a failure to conform to societal norms, an inability to maintain employment and to function adequately as a responsible parent, in addition to difficulties maintaining personal relationships. Antisocial acts include the destruction of property and disregard for the safety and well-being of others, stealing and illegal occupations. Furthermore, antisocial individuals tend to be irritable and aggressive even against members of their own family. They do not demonstrate any empathy in situations where they have injured or mistreated others and often rationalize their actions (APA,1980).

This atheoretical definition is very comprehensive in its inclusion of a wide range of behaviours. In an attempt to shed some light on possible associations, only

criminality, a manifestation of antisocial behaviour characteristic of individuals receiving a diagnosis of antisocial personality, will be referred to here.

Sociological explanations for criminal behaviour have examined, among others, cultural factors, level of industrialization and socioeconomic status. Some of the most quoted theories suggest the economically deprived are pressured by society to resort to illegitimate means of attaining socially approved goals. A variation of this states that such behaviour, learned like other forms of social behaviour, is deemed acceptable within the subculture yet frowned upon and punished by the rest of society. While these theories may have some merit, they fail to account for law abiding behaviour of the economically disadvantaged.

Other sociological theories attribute criminal behaviour to a weak or broken bond with society, a direct result of poor attachment to parents and association with delinquent peers. These theories, however, do not account for the form of criminal behaviour which results.

Sociologists as well as psychologists have recognized the importance of the family in the onset of criminal behaviour. The Gluecks' (1950) landmark work found delinquent families to be characterized by criminality, drunkenness, mental retardation and emotional disturbance, significantly more so than the families of nondelinquents. Furthermore, these families often experienced divorce,

separation, death or prolonged absence of a parent (Andrews, Bonta & Wormith, 1988).

A factor noted by the Gluecks so many years ago, lack of consistent parental discipline, has been advanced in the DSM-III manual as increasing the chances that ASPD will develop from conduct disorder, which begins before age 15. Other factors worthy of mention are removal from the family home and growing up without parents (or parental figures) of both sexes (APA, 1980).

The diagnosis of a substance use disorder pertains to "behavioural changes associated with more or less regular use of substances that affect the central nervous system (...). This includes impairment in social or occupational functioning (...), inability to control use or to stop taking substance and the development of serious withdrawal symptoms after cessation or reduction in substance abuse" (APA, 1980, p. 163). The DSM-III divides substance use disorders into substance abuse and substance dependence. The latter is considered to be the more severe form of substance use disorder and is characterized by either tolerance or withdrawal (APA, 1980).

What factors may explain the association between antisocial personality disorder and substance abuse? Early research efforts documented the association between this disorder and alcoholism, drug addiction and crime. (Henderson, 1939 cited in McCord & McCord, 1964).

Various explanations have been proposed for the presence of comorbidity, specifically the co-occurrence of antisocial personality and substance use disorders. Schuckit (1973) advanced the idea that impulsiveness or a biochemical abnormality may be responsible for the strong relationship between sociopathy and alcoholism, with sociopathy the more severe of the two disorders because of earlier onset and more serious course. Robins (1978) proposed that frequent childhood behavioral problems were related to later development of adult alcoholism, drug abuse and antisocial behaviour. According to Kumpfer and DeMarsh (1985), comorbidity may be the result of a "multigenerational" problem where families with substance abusing parents are more likely to have children who evidence substance abuse and display various mental problems.

An adoption study conducted by Cadoret, O'Gorman, Troughton and Heywood (1985) examined both genetic and environmental factors possibly associated with ASPD and alcoholism and found support for a genetic link. Specifically, there were significant relationships between alcohol problems in first degree relative and adoptee alcohol abuse as well as antisocial behaviour in first degree relative and adoptee with antisocial personality. The environmental factors, defined as adoptive family with antisocial behaviour and adoptive family with alcohol abuse,

were not significant in predicting adult antisocial behaviour. An alcohol problem in the adoptive family did, however, predict alcohol abuse in the adoptee.

Jones, Shainberg and Byer (1979), in explaining the development of drug dependency, advanced two possible explanations. During the early stages of drug use, motivation towards use is fuelled by the expected reward of a pleasurable experience. The drug user eventually becomes antisocial, with a lifestyle characterized by petty thievery and prostitution to support the drug use and hence avoid the negative effects of withdrawal. An alternate explanation which was forwarded attributed blame to the drug user's inadequate coping skills in dealing with life's hardships. Schuckit (1983) explains that secondary alcohol abuse can aggravate a primary disorder such as antisocial personality. Furthermore, an alcoholic may, while intoxicated, be prone to antisocial behaviour and commit serious crimes. In most instances, this behaviour will disappear with abstinence from alcohol.

A criminal orientation no doubt provides the opportunity for increased exposure to illegal activities, which could include the use and abuse of illicit drugs. It is also possible that the antisocial individual likely abuses drugs for purely hedonistic reasons, consistent with his disregard of society's conventions or the long term consequences of his actions and typical thrill seeking

behaviour. As such, substance abuse and crime may not be directly related but rather are elements of a general criminal lifestyle.

Huizinga, Menard and Elliott (1989) investigated these hypotheses using longitudinal data from the National Youth Survey in the U.S.. Between the substance abuse and delinquency categories which were examined, it was concluded that minor delinquency, with alcohol and marijuana use, is a necessary precursor to polydrug use. Serious delinquency and polydrug use were found not to be causally related although it was noted that polydrug use may contribute to the maintenance of serious delinquency.

According to social learning theory, antisocial behaviour is influenced by learning experiences. This theory advances that "delinquent activities are not different in kind from other forms of behaviour, and that learning variables exert a major influence on the acquisition, performance and maintenance of criminal behaviour" (Rutter & Giller, 1983, p.252). This theory does not encompass one explanation of criminal behaviour but many, such as biological, social, and situational. In their study of marijuana use among high school and college youth, Jessor, Jessor and Finney (1973) used social learning theory to explain deviance and drug use. Their most important finding was that marijuana use is part of a general problem behaviour orientation in youth, specifically, that

"marijuana use was considered functional and adaptive, like other socially learned behaviour, and the outcome of personality instigations and controls and environmental opportunities and supports that constitute an interrelated network" (Jessor,Jessor & Finney,1973,p.12). It was concluded that youths of all ages are undoubtedly socialized into the substance use and abuse meaning shared by many in society.

Evaluative Summary

Studies of clinical and general populations support the coexistence of ASPD and substance use disorders. Whether those examined were diagnosed as primary alcoholics or primary drug abusers, underlying ASPD exacerbated both substance use and ASPD symptomatology (Cadoret et al., 1984; Kosten et al., 1986; Liskow et al., 1991; Nace et al., 1991; Ross et al., 1988; Schuckit & Russell, 1984). Conversely, studies of primary antisocials revealed that these individuals were at an increased risk for substance use problems (Helzer & Pryzbeck, 1988; Lewis et al., 1983; Robins, 1966; Schuckit, 1973).

In offender populations, the results from studies of comorbidity lend support to the fact that ASPD and substance use seem to occur together at higher than chance frequency (Collins et al., 1988; CSC, 1990; Guze, 1969; Guze, 1974; Hare, 1983; Schuckit et al., 1977).

Etiological explanations of ASPD cover the fields of sociology, criminology and psychology. Biological as well as environmental factors have received attention in explaining comorbidity. Regardless of which explanation is adhered to, the literature leads one to believe that antisocial personality has been repeatedly associated with alcohol and drug related disorders.

The structure of DSM-III suggests, however, that substance use disorder and antisocial personality disorder

are distinct entities. Indeed substance use is diagnosed under Axis I while antisocial personality with the possibility of concurrent substance use can be found under Axis II.

The importance of conceptualizing these disorders as interrelated could have several ramifications in terms of treatment and prevention: charting the comorbidity of substance use disorders and psychiatric disorders is an important precursor to understanding how these disorders interact and affect treatment outcome. An educational function could be served by imparting to appropriate professionals the ability to accurately recognize the possibility of comorbidity as well as improve their handling of such cases, and the design of treatment programs geared towards disorders occurring in the context of other illnesses. The most important implication for those working with offenders is quite clear: the diagnosis of either drug abuse/dependence, alcohol abuse/dependence or antisocial personality disorder raises the possibility that one of the other disorders in this triad exists and should inspire further evaluation.

The association between substance use and antisocial personality suggests the presence of commonalities worthy of further investigation. Many studies have focused on the alcohol and/or drug use disorder as the unit of analysis and therefore, the antisocial personality symptomatology as it

relates to a substance use disorder requires further study, especially with respect to inmates.

More extensive research is warranted on the relationship between inmates' criminal histories, current terms of imprisonment, post-release behaviour and the diagnoses of antisocial personality disorder and substance use disorder.

Based on the research to date, several questions or hypotheses are suggested: previous findings indicated that antisocial inmates were more likely to suffer from concurrent drug and alcohol disorders. Drug disorders with no alcohol disorders were the least common substance use disorder. It is hypothesized that Ontario inmates will likely follow this same pattern given the support for this relationship thus far.

According to previous research, individuals who meet the criteria for antisocial personality disorder and a substance use disorder typically report more antisocial symptoms than antisocial individuals who do not meet the criteria for a substance use disorder. It is expected that this finding will also be reflected in the results here. To broaden the scope of enquiry, however, the frequency of antisocial symptoms will be compared between substance using and non substance using nonantisocial inmates as well. In this manner, conclusions can be drawn beyond the scope of antisocial inmates. It is anticipated that the presence of

a substance use disorder will increase the reporting of antisocial symptoms among nonantisocial inmates as well.

If antisocial inmates are matched with nonantisocial inmates based on similar substance use disorders, what effect, if any, can be attributed to the presence of antisocial personality? It is expected that the antisocial inmates, particularly those with concurrent substance use disorders will report more symptoms of antisocial personality and more extensive criminal careers than the nonantisocials, even those with concurrent substance use disorders.

The literature indicates that antisocial individuals are more prone to criminal behaviour than nonantisocial individuals. It is hypothesized that the antisocial inmates will have more prior convictions, incarcerations and more months incarcerated than the nonantisocial inmates, particularly when drug and alcohol disorders compound the personality disorder.

Finally, it is expected that antisocial inmates, given the lifelong pattern of criminality that is so often characteristic of their lifestyle, will be more likely to violate their parole or mandatory supervision conditions and/or incur new convictions following release into the community. It is expected that the answers to these questions will provide the necessary groundwork from which to develop a thorough understanding of the factors behind

comorbidity and criminality.

Method

Subjects

The Correctional Service of Canada (CSC) provided a systematic sample of 2,175 federally incarcerated inmates from the Atlantic, Ontario, Prairie and Pacific Regions. The sample was stratified by region. The sampling frame consisted of all those inmates serving sentences in federal institutions as of August 1988. Excluded from this sample were temporary detainees, inmates on day parole, inmates residing in correctional centres and inmates who had escaped. In each region, inmates were sorted by institution in ascending order of age to ensure that there would be proportional representation by institution and by age prior to sample selection. The samples were drawn beginning with the third case on each list (CSC,1988). For the purposes of this study, only those inmates from the Ontario region were selected for analysis. This region was chosen over others due to the proximity of the institutions to the writer, should further information be required.

Materials

Each inmate was interviewed by trained interviewers through contract with the Correctional Service of Canada. As the DIS was originally designed for use with the general population, minor modifications were made for use with inmates. Questions regarding marital status were reworded to apply to status upon incarceration and employment

questions were redesigned to include prison jobs. Two questions concerning arrest and conviction were automatically coded positive and skipped since it was already known that the inmates had been arrested and convicted. Finally, a question concerning recency of drug use was supplemented by a statement to be read by the interviewer indicating that the circumstances of last drug use, whether in prison or not, were not of interest but rather the date of last drug use (CSC,1988) (see Appendix A).

Criminal records, which spanned first adult conviction through to the end of the follow-up period, were provided by the RCMP (Royal Canadian Mounted Police) for all Ontario subjects. Official computerized parole supervision records were used to determine the type of release given each inmate, date of release and revocations. The two main types of release available to Canadian federal inmates which were considered in this study are full parole and mandatory supervision (MS). Inmates are eligible for full parole once they have served a third of their sentence. Mandatory supervision is available to inmates once two thirds of the sentence have been served providing they have earned full "remission" for good behaviour (CSC,1990).

A coding scheme was developed to code the criminal career (criminal history and current offence) (see Appendix B) information available on each subject as well as follow-

up information (see Appendix C). "Criminal history" refers to convictions received prior to the most current federal term of incarceration while "current term" refers to the federal term being served when the inmate was interviewed. Failure on release during the follow-up period pertains to reincarceration for at least one violation of parole or mandatory supervision conditions and/or at least one new conviction received by the inmate after release into the community. The follow-up period extends from August 31, 1988 (following the DIS interview) to May 20, 1990. Recent research conducted by CSC (1991) indicated that a follow-up period of at least one year was sufficient within which to gauge recidivism.

The coding scheme provided the framework to organize the information for the past, current and follow-up time periods such as the number of convictions prior to current term and the total number of months incarcerated. For the follow up period, the type of release, any violations/revocations and/or the nature and number of any new convictions were recorded. The type of criminal sanction received, ranging from an absolute discharge through to life imprisonment and the convictions received for offenses ranging from public morals charges to homicide were also coded (see Appendix D).

Procedures

The objectives of the study conducted by CSC were discussed on July 19, 1988 at a meeting of the Regional Directors. Subsequently, the roles of the Regional Coordinator and Institutional Coordinator were outlined. All wardens received letters detailing the purpose and design of the survey. They were also provided with material with which to introduce the study to inmate committees at each institution (CSC, 1988) (see Appendixes E and F).

Interviews were conducted in all four regions simultaneously, beginning the week of September 12, 1988. Data collection ended by December 6, 1988.

The interview procedure involved an explanation of the purpose of the interview to the inmate, answering any questions and securing the inmate's participation. Each consent form was read to the inmate to avoid any misunderstanding that could arise if the inmate lacked reading skills. Confidentiality was stressed in this process (CSC, 1988) (see Appendix G).

The interview was conducted according to the standard DIS administration procedures. All interviews were reviewed and edited as required following interview completion. To assure quality of interviewing and data collection, trained field monitors observed a selected portion of the interview sessions and noted any problems with administration or coding. Interviewers' performances were regularly evaluated

by the field monitor. In addition to these safeguards, daily contact with interviewers permitted tabulation of the number of completed interviews, refusals and "no shows". The completed and partially completed DIS forms were edited by a trained editor, aided by computer assisted data cleaning methods (CSC,1988).

For the present study, the sample of interest (all those inmates to whom the DIS was administered in the Ontario region) was divided into two groups: those inmates who met the diagnostic criteria for antisocial personality disorder (ASPD) and those who failed to meet these criteria (NASPD) but who met the criteria for other disorders. According to the DSM-III diagnostic program, a code of 1 is assigned to those individuals who definitely do not meet or are "negative" for antisocial personality disorder. Inmates who met the criteria for antisocial personality disorder were coded 3: they are at least 18 years of age or older, have experienced three or more positive conduct disorder groups before age 15, four or more positive adult behaviour problem groups, some adult behaviour problems between the ages of 18 and 25 and are not manic or schizophrenic (see Appendix H).

According to the DSM-III, five classes of substances are associated with dependence and abuse that are subsumed under the diagnosis of "substance use disorder":

alcohol, barbiturates or similarly acting sedatives or hypnotics, opioids, amphetamines or similarly acting sympathomimetics, and cannabis (...). Only three classes of substances are associated with abuse because physiological dependence has not been demonstrated: cocaine, phencyclidine (PCP) or similarly acting arylcyclohexylamines, and hallucinogens.

(APA,1980,p.165-166).

The DSM-III states that three criteria distinguish nonpathological substance use from Substance Abuse: 1) a pattern of pathological use, demonstrated by an inability to restrict or stop use, intoxication throughout the day, repeated efforts to control use, need for substance on a daily basis to permit normal functioning, continued use despite physical problems the subject knows are a result of substance use and complication of the substance intoxication such as blackouts; 2) impairment in social or occupational functioning caused by a pattern of pathological use, which refers to disturbed family and work relations and legal difficulties; 3) duration where abuse must last at least one month, the signs of which need not be continuous but must be sufficient to form a pattern of pathological use which causes impairment in social or occupational functioning (APA,1980).

Substance dependence is characterized by either

tolerance or withdrawal. Tolerance refers to the need for increased amounts of the substance to achieve the same effect or there is diminished effect with regular use of the same dose. In the case of withdrawal, "a substance specific syndrome follows cessation of or reduction in intake of a substance that was previously regularly used by the individual to induce a physiological state of intoxication" (APA, 1980, p.165).

A drug summary variable was used in this study since the emphasis was placed on the patterns of ASPD symptomatology and not the type of substance abuse/dependence. This summary variable specified whether abuse of at least one drug was present with no dependence, if dependence was present with no abuse, and finally, if both dependence and abuse were present (see Appendix H). Tobacco Dependence was not included in the drug summary variable. Alcohol abuse and/or dependence was treated as separate from the drug abuse/dependence variable. Only lifetime diagnoses of antisocial personality and substance use disorder were used for the purposes of this study which refers to the percentage of inmates who revealed evidence of a particular disorder at least once in their lifetime.

The data were evaluated for representativeness of the Ontario federal prison population using the Offender Population Profile Regional Report (CSC, August 1988) for the time during which the DIS was administered. The

variables available for comparison were age, race, religion, marital status, citizenship and language.

The majority of the frequency distributions for both antisocial and nonantisocial inmates on the continuous criminal career variables were found to be highly positively skewed and in many cases resembled a "J" shaped distribution. Transformations were attempted, however, they did not normalize the shape of the distributions. Because of this extreme departure from normality, it was decided to use non-parametric tests on the data.

In order to detect significant differences between antisocial and nonantisocial inmates, the Chi Square test was used for dichotomous variables where no expected cell frequencies were less than five. When the smallest expected frequency was less than five, Fisher's exact probability test was used (Siegel,1988). For continuous variables, the Kolmogorov-Smirnov two sample test was used to identify significant differences. This test determines whether two independent samples have been drawn from the same population distribution (Siegel,1988).

The data were examined in three steps: first, the defining elements of antisocial personality disorder and substance use disorder were examined with respect to this sample, followed by their criminal career characteristics (criminal history and current criminal background) and third, the follow-up results. At each step, by proceeding

from the general to the more specific, comparisons were made between antisocial and nonantisocial inmates and then substance using inmates were contrasted with non substance using inmates.

Subsequently, the inmates were compared within the antisocial and nonantisocial groups, where those without substance use disorders were contrasted with those who failed to meet the criteria for a substance use disorder (the types of substance use disorders were collapsed to facilitate analysis). It was hoped that differences due to the presence of a substance use disorder could be identified.

Finally, comparisons were undertaken between antisocial and nonantisocial inmates, taking into account the type of substance use diagnosis. Antisocial and nonantisocial inmates were divided into a total of eight disorder configurations: no drug and alcohol abuse/dependence (ASPD/N and NASPD/N), drug only (ASPD/D and NASPD/D), alcohol only (ASPD/A and NASPD/A) and concurrent drug and alcohol abuse/dependence (ASPD/DA and NASPD/DA). Pairwise comparisons were conducted on each of the antisocial configurations with its equivalent nonantisocial counterpart. Although substance abuse and dependence are diagnosed separately according to DSM-III criteria, these diagnoses were collapsed as sample sizes across the levels of abuse and dependence were prohibitively small. The goal

was to determine if there were differences possibly attributable to the presence of antisocial personality disorder.

Following these comparisons of ASPD symptomatology among groups, the principal analysis was conducted. This involved a hierarchical loglinear analysis of the criminal career and follow-up data to determine what associations exist, if any, among select discrete variables. Hierarchical loglinear analysis was chosen over nonhierarchical as it is the norm for examining multiway frequency tables and tests of significance are provided to determine the most parsimonious and best fitting model (Tabachnick and Fidell, 1989).

This non-parametric technique was selected due to the violation of assumptions necessary to perform an analysis of variance with the continuous variables. In particular, it was decided that the definite departure from normality would make the use of means unwise and probably misleading.

Loglinear analysis is well suited to detect the associations among three or more categorical variables with the dependent variable being the cell frequency. This technique also addresses the problem of a significant two-way association (such as that found in a Chi square test) which has been influenced by a third variable (Upton, 1991). The loglinear analyses will therefore confirm the findings of the preliminary tests of significance performed on the

data, or will negate them by pointing to the influence of other variables on the two-way tests conducted. The only limitation to this type of analysis is the size of the expected frequency in each cell (Tabachnick & Fidell, 1989). For this reason, only certain key variables were chosen in order to keep the models as parsimonious as possible. Also, in keeping with the theoretical framework and the findings of previous studies, certain variables were believed to be more pertinent than others.

A model was evaluated in each of the prior, current and follow-up time periods. In total, three models were fitted which included only those associations necessary to reproduce the observed frequencies. To summarize the significant associations across the three time periods, a final section addressed the relationships between criminal career variables and recidivism indicators, once again using loglinear analysis.

Results

The diagnostic data from the DIS interview had been subjected to a SAS cleaning pass by the Correctional Service of Canada prior to the commencement of this analysis. All sample variables were examined, through various SAS programs, for accuracy of data entry and the identification of missing values.

A total of 428 Ontario male inmates were interviewed using the DIS. This number was reduced to 420 after deletion of two cases where there was no federal time served and six cases whose fingerprint section numbers were not traceable, thereby negating the gathering of any criminal career data.

The sample was subsequently divided into the two pure groups of interest: those who received a definite diagnosis of antisocial personality disorder (ASPD, $n=221$) and those who were found to be definitely negative for antisocial personality disorder (NASPD, $n=114$). In the interests of keeping the two groups of interest as pure as possible, inmates falling within the category of "possibly antisocial", such a category created by reducing criteria to two positive conduct disorder groups and three positive adult behaviour problem groups, were excluded. Also excluded were inmates who received a definite diagnosis of antisocial personality with concurrent mania or schizophrenia.

One case in the ASPD group did not have a diagnosis with respect to alcohol abuse/dependence. Six cases in the ASPD group and one in the NASPD group had missing diagnoses for drug abuse/dependence. These cases were deleted given the fact that they were few in number and the absence of a diagnosis seriously limited their usefulness to any analysis. This procedure resulted in 214 cases remaining in the ASPD group and 113 in the NASPD group. No data were missing among the criminal career (criminal history and current criminal background) and follow-up variables for either group.

Sample characteristics

The demographic variables available to describe the sample were race, religion, language, citizenship, marital status and age. As indicated in Table 1, eighty-seven percent of the sample was caucasian. Over a third of inmates were Roman Catholic and 36.7% were Protestant. English was the preferred language of the vast majority (94.5%). Most inmates were Canadian (92.3%) and single (47.1%). Almost a quarter were living common-law (23.8%). The mean age at the time of the DIS interview was 32 with a range of 19-73. These figures were found to be representative of the Ontario population of federally incarcerated inmates at the time the DIS was administered.

With respect to the diagnosis of antisocial

Table 1

Demographic characteristics of Ontario inmates interviewed
using the DIS

Ontario inmates		
(N=327)		
Demographic variables	<u>n</u>	<u>%</u>
<hr/>		
Race		
Caucasian	285	87.2
Native American	11	3.3
Metis/black/other	31	9.5
Religion		
Roman catholic	126	38.5
Protestant	120	36.7
other	51	15.6
(jewish, muslim, buddhist)		
atheist	7	2.1
not stated	23	7.0
Language		
English preferred	309	94.5
French preferred	9	2.7
not stated/other/		
no knowledge of either	9	2.7
Citizenship		
Canadian	302	92.3
Landed immigrant	14	4.3
other	11	3.4
Marital status		
single	154	47.1
common law	78	23.8
married	49	15.0
other		
(widowed/separated/divorced)	46	14.1

personality, the results for the Ontario region are quite representative of the national findings reported by CSC (see Table 2), even though the CSC used wide criteria by including inmates who suffered from antisocial personality and mania or schizophrenia, while the present study used stringent criteria only.

From the national study results, it was determined that 75% of the total inmate population met the criteria for antisocial personality disorder while the Ontario results indicated that 65% of all Ontario inmates would meet the criteria for antisocial personality disorder.

A perusal of some of the disorders characterizing the NASPD group revealed that 62.4% met the criteria for Tobacco Dependence, 39.4% for Generalized Anxiety, 23.4% for Psychosexual Dysfunction and 15.9% for Major Depressive Episode.

Defining elements of antisocial personality disorder and substance use disorder

Comparison between antisocial and nonantisocial inmates. According to the DSM-III, antisocial individuals should be differentiated from nonantisocial individuals by a long term pattern of continuous and chronic antisocial behaviour. There are twelve symptom groups characterizing such behaviour before the age of 15 and nine symptom groups after the age of 18. The results indicate significant

Table 2

Antisocial personality and concurrent substance use disorder
diagnoses for inmates across Canada and within the Ontario
region

Disorder configuration	National findings (N=2,175) (CSC)	Ontario findings (N=327)
ASPD+drugs+alcohol	37.8%	35.5%
ASPD+alcohol	20.0%	16.0%
ASPD+drugs	8.5%	6.7%
ASPD only	8.8%	7.0%

Note. ASPD=antisocial personality disorder.

Table 3

Frequency of conduct disorder groups among inmates with and without lifetime antisocial personality disorder

Conduct disorder groups	ASPD (<u>n</u> =214)		NASPD (<u>n</u> =113)		p
	<u>n</u>	%	<u>n</u>	%	
Truant	129	60.3	13	11.5	***
Expelled, suspended	106	49.5	9	8.0	***
Arrest	125	58.4	5	4.4	***
Run away from home	81	37.8	2	1.8	***
Lying	95	44.4	12	10.6	***
Sex before age 15	150	70.0	24	21.2	***
Drunk/drug use	94	43.9	13	11.5	***
Stealing	165	77.1	28	24.8	***
Vandalism	83	38.8	4	3.5	***
Poor grades	60	28.0	11	9.7	***
Trouble at school	153	71.5	15	13.3	***
Starts fights	101	47.2	11	9.7	***

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.

***p<.001.

Table 4

Frequency of behaviour problem groups occurring after age 18 among inmates with and without lifetime antisocial personality disorder

Adult behaviour problem groups	ASPD (<u>n</u> =214)		NASPD (<u>n</u> =113)		p
	<u>n</u>	%	<u>n</u>	%	
Job troubles	191	89.3	67	59.3	***
Negligent towards children	9	4.2	2	1.8	NS
Non-traffic arrest	214	100.0	113	100.0	***
Marital/relationship problems	173	80.8	53	46.9	***
Violence	166	77.6	41	36.3	***
Trouble with debts	5	2.3	2	1.8	NS
Vagrancy	124	57.9	22	19.5	***
Lying	145	67.8	27	23.9	***
Traffic offenses	115	53.7	49	43.3	NS

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.

***p<.001.

differences on the majority of these symptom groups.

Comparison of antisocial and nonantisocial inmates revealed that the same three conduct disorder groups before age 15 are prevalent, although at different frequencies. As indicated in Table 3, the ASPD group most frequently reported stealing (77.1%), trouble at school (71.5%) and sex before age 15 (70%).

The NASPD group most frequently reported the same conduct disorder groups, stealing (24.8%), sex before age 15 (21.2%) and trouble at school (13.3%). Highly significant differences on all conduct disorder groups were found between the two groups.

After age 18, all of the ASPD group reported non-traffic arrests, 89.3% job troubles and 80.8% marital/relationship problems. The same pattern was noted in the NASPD yet at lower frequencies, with all inmates reporting non-traffic arrest, job troubles (59.3%) and marital/relationship troubles (46.9%) (see Table 4).

The ASPD and NASPD groups differed significantly on some of the behaviour problems occurring after age 18. Specifically, the Kolmogorov-Smirnov test showed that the ASPD group had more symptoms of job troubles, non-traffic arrest, marital/relationship problems, violence, vagrancy, and lying than the NASPD inmates.

The literature has indicated that antisocial individuals are more likely to meet the criteria for

Table 5

Different substance use disorder configurations with and without lifetime antisocial personality disorder

Substance use disorder	ASPD (<u>n</u> =214)		NASPD (<u>n</u> =113)		p
	<u>n</u>	%	<u>n</u>	%	
No drug, no alcohol	23	10.7	52	46.0	***
Alcohol, no drug	53	24.7	35	31.0	
Drug, no alcohol	22	10.3	6	5.3	
Alcohol and drug	116	54.2	20	17.7	
Total	214	100.0	113	100.0	

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.

*** $p < .001$.

substance use disorders, particularly concurrent alcohol and drug abuse/dependence than nonantisocial individuals.

The results confirm this pattern as both groups differed significantly in their overall alcohol abuse/dependence diagnoses and drug abuse/dependence diagnoses, indicating more frequent problems of this nature among antisocial inmates, as is evident in Table 5. Confirming prior findings in the literature, the majority of antisocial inmates had concurrent drug and alcohol abuse/dependence. In contrast, almost half of nonantisocial inmates failed to meet the criteria for either drug or alcohol disorder.

Substance users versus non users. Will substance using inmates (inmates designated as substance "users" were those who met the criteria for a substance use disorder) report more symptoms of antisocial personality than inmates who did not meet the criteria for substance use disorder? To answer this question, substance users were compared to non users on all childhood and adult antisocial personality disorder symptom groups.

The results indicate that substance use disorder plays an active part in the antisocial personality disorder symptomatology. Significant differences were found on all conduct disorder groups before age 15. As indicated in Table 6, substance users were more than eleven times more likely to have run away from home (32.1% versus 2.7%) and

Table 6

Frequency of conduct disorder groups among inmates with and without substance use disorder

	Substance users		Non substance users		
	(n=252)		(n=75)		
Conduct disorder groups	n	%	n	%	p
Truant	130	51.6	12	16.0	***
Expelled, suspended	103	40.9	12	16.0	***
Arrest	116	46.0	14	18.7	***
Run away	81	32.1	2	2.7	***
Lying	95	37.7	12	16.0	***
Sex before age 15	150	59.5	24	32.0	***
Drunk/drug use	102	40.5	5	6.7	***
Stealing	169	67.1	24	32.0	***
Vandalism	78	31.0	9	12.0	***
Poor grades	61	24.2	10	13.3	*
Trouble at school	152	60.3	16	21.3	***
Starts fights	103	40.9	9	12.0	***

*p<.05. ***p<.001.

Table 7

Frequency of adult behaviour problem groups for inmates with and without substance use disorder

Adult behaviour problem groups	Substance users (<u>n</u> =252)		Non substance users (<u>n</u> =75)		p
	<u>n</u>	%	<u>n</u>	%	
Job troubles	214	84.9	44	58.7	***
Negligent toward children	11	4.4	0	0.0	NS
Non traffic arrest	252	100.0	75	100.0	***
Marital/relationship problems	191	75.8	35	46.7	***
Violence	179	71.0	28	37.3	***
Debts	5	2.0	2	2.7	NS
Vagrancy	124	49.2	22	29.3	**
Lying	151	59.9	21	28.0	***
Traffic	139	55.2	25	33.3	**

p<.01. *p<.001.

six times more likely to have been drunk or used drugs (40.5% versus 6.7%).

After age 18, substance using inmates reported more non-traffic arrests than non substance using inmates. Job troubles also figured prominently as a frequent behaviour problem group among users (84.9%) compared to 58.7% of non users.

Marital/relationship problems were also far more frequent among users than non users (75.8% versus 46.7%) as was violence (71% versus 37.3%) and lying (59.9% versus 28%) (see Table 7).

Antisocial inmates: substance users versus non users.

In an effort to establish whether inmates with a substance use disorder more frequently reported antisocial personality symptoms than inmates without a substance use disorder, substance users were compared to non users within the antisocial group. The results indicate that the presence of a substance use disorder was associated with more frequent positive childhood conduct disorder symptoms.

As indicated in Table 8, there was significantly more truancy among the antisocial substance users compared to the non substance using inmates before age 15 (63.3% versus 34.8%), as well as more running away (41.4% versus 8.7%), drunk/drug use (48.7% versus 4.3%), starting fights (49.7% versus 26.1%) and trouble at school (73.8% versus 52.2%). This pattern did not hold into adulthood, however, as no

Table 8

Antisocial inmates: substance users compared to non users
on frequency of childhood conduct disorder groups

	Antisocial substance users (<u>n</u> =191)		Antisocial non substance users (<u>n</u> =23)		p
	<u>n</u>	%	<u>n</u>	%	
Truant	121	63.3	8	34.8	**
Expelled, suspended	95	49.7	11	47.8	NS
Arrest	112	58.6	13	56.5	NS
Run away	79	41.4	2	8.7	**
Lying	86	45.0	9	39.1	NS
Sex before age 15	132	69.1	18	78.3	NS
Drunk/drug use	93	48.7	1	4.3	***
Stealing	148	77.5	17	73.9	NS
Vandalism	75	39.3	8	34.8	NS
Poor grades	54	28.3	6	26.1	NS
Trouble at school	141	73.8	12	52.2	*
Starts fights	95	49.7	6	26.1	*

* $p < .05$. ** $p < .01$. *** $p < .001$.

significant differences were found between users and non users with respect to adult behaviour problems after age 18 associated with antisocial personality.

Nonantisocial inmates: substance users versus non users. Substance users were compared to non users within the nonantisocial group to determine if the presence of a substance use disorder aggravated the antisocial personality symptomatology of this group. As with antisocial inmates, the presence of a substance use disorder was related to more frequent childhood conduct disorder symptoms but only for three symptom groups (see Table 9). Specifically, users were significantly different from non users for being expelled/suspended from school, sex before age 15 and stealing.

Unlike antisocial inmates, however, substance abusing nonantisocial inmates persisted into adulthood with significant differences between users and non users. As indicated in Table 10, users reported more symptoms of non-traffic arrest, marital relationship problems, and traffic offenses than non users.

Antisocial and nonantisocial inmates matched on substance use disorders. To pinpoint differences possibly attributable to only the presence of antisocial personality disorder, antisocial and nonantisocial inmates were matched on substance use disorders. For comparison purposes, ASPD/A inmates were matched with NASPD/A inmates, ASPD/D were

Table 9

Nonantisocial inmates: substance users compared to non users on frequency of childhood conduct disorder groups

Conduct disorder groups	Nonantisocial substance users (<u>n</u> =61)		Nonantisocial non substance users (<u>n</u> =52)		p
	<u>n</u>	%	<u>n</u>	%	
Truant	9	14.7	4	7.7	NS
Expelled, suspended	8	13.1	1	1.9	*
Arrest	4	6.6	1	1.9	NS
Run away	2	3.3	0	0.0	NS
Lying	9	14.7	3	5.7	NS
Sex before age 15	18	29.5	6	11.5	*
Drunk/drug use	9	14.7	4	7.7	NS
Stealing	21	34.4	7	13.5	**
Vandalism	3	4.9	1	1.9	NS
Poor grades	7	11.5	4	7.7	NS
Trouble at school	11	18.0	4	7.7	NS
Starts fights	8	13.1	3	5.7	NS

*p<.05. **p<.01.

Table 10

Nonantisocial inmates: substance users compared to non
users on frequency of adult behaviour problem groups

Adult behaviour problem groups	Nonantisocial substance users (<u>n</u> =61)		Nonantisocial Non substance users (<u>n</u> =52)		p
	<u>n</u>	%	<u>n</u>	%	
Job troubles	42	68.8	25	48.1	NS
Negligent toward children	2	3.3	0	0.0	NS
Non traffic arrest	61	100.0	52	100.0	***
Marital/relationship problems	36	59.0	17	32.7	*
Violence	29	47.5	12	23.1	NS
Debts	0	0.0	2	3.8	NS
Vagrancy	15	24.6	7	13.5	NS
Lying	18	29.5	9	17.3	NS
Traffic	36	59.0	13	25.0	**

*p<.05. **p<.01. ***p<.001.

matched with NASPD/D inmates and so on.

It appeared that each configuration displayed its own pattern of antisocial personality symptomatology as presented in Table 1 and 2 of Appendix I. Before age 15, the ASPD/DA inmates outnumbered all other disorder configurations for stealing (84.5%), trouble at school (78.4%), being expelled/suspended (55.2%), starting fights (55.2%), drunk or drug use (54.3%) and vandalism (45.7%).

The ASPD/DA inmates were significantly different from the NASPD/DA inmates on all conduct disorder groups except for lying and poor grades.

The ASPD/A inmates reported truancy (69.8%) and poor grades (30.2%) more frequently than any other groups. The ASPD/A were significantly different from the NASPD/A inmates on all conduct disorder groups except for poor grades.

The ASPD/D inmates had more arrests (72.7%) than any other disorder configuration. They were also significantly more likely than the NASPD/D inmates to be truant (59.1% versus 0%), arrested (72.7% versus 16.7%), lie (54.5% versus 0%) and to experience trouble at school (72.7% versus 16.7%).

The ASPD/N inmates reported more promiscuity (78.3%) than any other disorder configuration. The ASPD/N inmates were significantly different from NASPD/N inmates on all conduct disorder groups except for drunk/drug use.

Table 3 in Appendix J indicates the frequency of adult

behaviour problem groups for the eight disorder configurations. After age 18, the ASPD/DA inmates reported the most negligence towards children (6%), marital problems (83.6%), violence (81%), vagrancy (66.4%), and traffic arrests (58.6%) than any other groups. The ASPD/DA inmates were significantly different from the NASPD/DA inmates on marital problems (83.6% versus 55%) and violence (81% versus 55%).

The ASPD/A were significantly different from the NASPD/A inmates on all adult behaviour problem groups except negligence towards children, debts and traffic arrests.

The ASPD/D inmates most frequently reported job troubles (95.4%), debts (4.5%) and lying (81.8%) compared to the other disorder configurations. These inmates were significantly different from the NASPD/D inmates on job troubles (95.4% versus 66.7%) and lying (81.8% and 16.7%).

The ASPD/N inmates were significantly different from the NASPD/N inmates on all conduct disorder groups except for trouble with debts.

Criminal career data

Criminality is a manifestation of antisocial behaviour characteristic of individuals receiving the antisocial personality diagnosis according to the DSM-III. Therefore, it is logical to assume that antisocial inmates would have more intense contact with the criminal justice system, more

so than nonantisocial inmates.

Comparison between antisocial and nonantisocial inmates. The results indicate that antisocial inmates had more prior convictions (median=15) than nonantisocial inmates (median=3). As presented in Table 11, antisocial inmates were also more likely to have had a prior incarceration. More of the ASPD group (48.2%) had sixteen or more convictions prior to current term, compared to 14.1% of the NASPD group. A third of the NASPD group were first offenders (31.9%), compared to only 4.7% of the antisocial inmates.

Almost half of the nonantisocial inmates (48.7%) had never been incarcerated before the current term, compared to 9.3% of the antisocial inmates. Fifty-nine percent of the latter already had between one and five prior incarcerations. Antisocial inmates' criminal histories had significantly more robberies, assaults, drug related, property related, escapes and public moral offenses than the nonantisocial group.

When conviction types were dichotomized into at least one violent conviction (see Appendix D for conviction types qualifying as violent), 67% of antisocial inmates had at least one prior conviction for a violent offence compared to 44% of nonantisocial inmates. This association was statistically significant $\chi^2(1, n = 327) = 16.27, p < .001$. With respect to current term, the majority of the NASPD

Table 11

Criminal history of inmates with and without lifetime
antisocial personality disorder

	ASPD		NASPD		
	(n=214)		(n=113)		
Criminal career variables	<u>n</u>	%	<u>n</u>	%	p
<hr/>					
Prior incarceration					
Yes	194	90.6	58	51.3	
No	20	9.4	55	48.7	***
Number of convictions prior to current					
0	10	4.7	36	31.9	
1-5	29	13.5	33	29.2	
6-10	43	20.1	15	13.3	***
11-15	29	13.5	13	11.5	
16+	103	48.2	16	14.1	
Prior times incarcerated					
0	20	9.3	55	48.7	
1-5	128	59.8	46	40.7	
6-10	51	23.8	9	8.0	***
11-15	13	6.1	0	0.0	
16+	2	1.0	3	2.6	
Prior months incarcerated					
0	20	9.3	55	48.7	
1-24	62	29.0	25	22.1	
25-48	44	20.5	14	12.4	
49-72	23	10.7	6	5.3	***
73-96	23	10.7	5	4.4	
97+	42	19.8	8	7.1	

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.
***p<.001.

Table 12

Current criminal background of inmates with and without
lifetime antisocial personality disorder

	ASPD		NASPD		
	(n=214)		(n=113)		
Current criminal background variables	n	%	n	%	p
<hr/>					
Number of current convictions					
0	0	0.0	0	0.0	***
1-5	33	62.1	92	81.4	
6-10	46	21.5	15	13.3	
11-15	23	10.7	1	0.8	
16+	12	5.7	5	4.4	
Current times incarcerated					
0	0	0.0	0	0.0	NS
1-5	214	100.0	113	100.0	
Current number of months incarcerated					
0	0	0.0	0	0.0	NS
1-24	18	8.4	10	8.8	
25-48	63	29.4	35	40.0	
49-72	39	18.2	19	16.8	
73-96	22	10.3	6	5.3	
97+	72	33.7	43	29.1	

Note. ASPD=antisocial personality disorder;
 NASPD=nonantisocial personality disorder

***p<.001.

inmates (81.4%) were serving time for one to five convictions, compared to 62.1% of the ASPD group. They were not significantly different in the number of months being served or times incarcerated (see Table 12).

The ASPD group is currently incarcerated for significantly more robberies, property related and weapons convictions than the NASPD group. Antisocial inmates were not significantly more likely to have a current conviction for a violent offence than nonantisocial inmates. Indeed, 78.5% of antisocial inmates and 76.1% of nonantisocial inmates had at least one current conviction for a violent offence.

Substance users versus non users. Substance users and non users were compared with respect to the criminal career variables to ascertain the effect, if any, of the substance use would have on the number of convictions and times incarcerated, irrespective of the personality disorder.

Users and non users were not found to be significantly different with respect to prior incarceration and total number of times incarcerated. Users, however, had significantly more convictions prior to the current term. Forty percent had in excess of sixteen convictions prior to current term compared to 24% of non users. Users were serving significantly more months of incarceration than non users. The bulk of users (27.4%) had served between 1-24 months compared to non users, 44% of whom had no prior

months incarcerated. Neither were significantly different with respect to number of current convictions or current number of months sentenced to incarceration.

Substance users were significantly more likely to have had prior drug related, property related, traffic, weapon and public morals convictions than non substance users. The vast majority of users (78%) had prior property convictions compared to just over half of (50.7%) non users. Interestingly, only 30.5% of users had prior drug related convictions, in contrast to 10.7% of non users. Users were not significantly different from non users in terms of whether or not they had a prior conviction for a violent offence.

In the current term, users continued to predominate significantly, particularly for robberies, property related and public morals convictions. Thirty eight percent of users had at least one robbery conviction compared to 17.3% of non users. Over a third of users (37.7%) had at least one current property conviction in contrast to 18.7% of non users. Users were not significantly more likely than non users to have a current conviction for a violent offence.

Antisocial inmates: substance users versus non users.

Substance users were compared to non users among antisocial inmates to determine if a concurrent substance use disorder increased the likelihood of contact with the criminal justice system.

Table 13

Criminal history of antisocial substance users compared to antisocial non users

	Antisocial non substance users (<u>n</u> =23)		Antisocial substance users (<u>n</u> =191)		
Criminal career variables	<u>n</u>	%	<u>n</u>	%	p
Prior incarceration					
Yes	23	100.0	171	89.5	NS
No	0	0.0	20	10.5	
Convictions prior to current					
0	0	0.0	10	5.2	NS
1-5	3	13.0	26	13.6	
6-10	4	17.4	39	20.4	
11-15	3	13.0	26	13.6	
16+	13	56.5	90	47.1	
Prior times incarcerated					
0	0	0.0	20	10.5	NS
1-5	14	60.8	114	59.7	
6-10	7	30.4	44	23.0	
11-15	2	8.7	11	5.7	
16+	0	0.0	2	1.0	
Prior months incarcerated					
0	0	0.0	20	10.5	**
1-24	10	43.5	52	27.2	
25-48	2	8.7	42	22.0	
49-72	2	8.7	24	12.6	
73-96	0	0.0	23	12.0	
97+	9	39.1	30	15.7	

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder; **p<.01.

Antisocial substance using inmates were not significantly more likely than antisocial non substance using inmates to have had prior incarceration, more convictions prior to current term or more prior times incarcerated. Users and non users were significantly different, however, in the number of months incarcerated prior to current term.

The largest proportions of each group had served between 1-24 months, 43.5% and 27.2% of non users and users respectively. More non users (39.1%) were serving long sentences of 97 months or more compared to 15.7% of users (see Table 13).

Substance users predominated over non users for assaults, drug related, alcohol related, property, traffic and public morals offenses. Although non users were convicted more often of violent sexual, sexual, robbery, fraud related and weapons offenses none of these differences reached statistical significance.

When conviction types were dichotomized once again into violent/nonviolent, antisocial users and antisocial non users were not significantly different with respect to prior conviction for a violent offence.

No significant differences were noted among users and non users with respect to current criminal variables. Sixty-four percent of users had between one and five current convictions compared to 43.5% of non users. Forty three

percent of non users and 32.5% of users are serving in excess of 97 months.

With respect to current convictions type, users had significantly more public morals convictions while non users predominated for weapons convictions. Antisocial users were not more likely than antisocial non users to have a current conviction for a violent offence.

Nonantisocial inmates: substance users versus non users. Substance users were compared to non users to determine whether meeting the criteria for a substance use disorder was associated with more contact with the criminal justice system. Almost half of non users were first offenders (48.1%) compared to only 18% of users. Users and non users were significantly different on number of convictions prior to current term $X^2 (4, n = 113) = 12.12, p < .05$), whether or not they had prior incarceration $X^2 (1, n = 113) = 8.43, p < .01$) and number of times incarcerated. Substance users had the most convictions prior to current term, were more likely to have had prior incarceration and had been incarcerated more frequently than non users.

With respect to the type of offenses characterizing each group, users committed significantly more weapon and public morals offenses, as well as drug related, alcohol related and property crimes than non users. Nonantisocial users were not more likely to have a prior conviction for a violent offence than nonantisocial non users.

In the current term, no significant differences were noted on any of the current variables. The majority of inmates from both groups were serving time for one to five convictions. Furthermore, 34.4% of users and 42.3% of non users had current incarceration in excess of 97 months.

Users were significantly different from non users with respect to whether or not they had current convictions for property crimes. Substance users were more than four times more likely to be convicted of a property crime (27.8%) compared to non users (5.7%). Two times the number of non users were convicted of drug related crimes (23.1%) compared to users (11.5%). Neither of these associations reached statistical significance. Nonantisocial users were not significantly more likely to have a current conviction for a violent offence than nonantisocial non users.

Antisocial and nonantisocial inmates matched on substance use disorders. Inmates were once again matched, antisocial and nonantisocial, according to substance use disorder to determine the existence of differences possible attributable to the presence of the personality disorder.

The ASPD/DA and NASPD/DA inmates were not significantly different with respect to number of convictions prior to current, number of times incarcerated or number of months sentenced to incarceration.

The ASPD/A and the NASPD/A inmates were significantly different on number of convictions prior to current, number

of times incarcerated and total number of months sentenced to incarceration. ASPD/A inmates had more convictions prior to current than NASPD/A inmates (49.1% versus 11.4% had in excess of sixteen prior convictions). Half of ASPD/A inmates had one to five prior incarcerations while 48.5% of NASPD/A inmates had no prior incarceration whatsoever.

The ASPD/D and NASPD/D inmates were significantly different on the number of convictions prior to current. Fifty percent of ASPD/D inmates had in excess of sixteen convictions prior to current in contrast to only 16.7% of NASPD/D inmates.

The ASPD/N and NASPD/N inmates were significantly different on the number of convictions prior to current, number of times and number of months incarcerated. Fifty-six percent of ASPD/N had in excess of sixteen prior convictions in contrast to 9.6% of NASPD/N inmates. Furthermore, 60.8% of ASPD/N inmates had between one and five prior incarcerations while 63.4% of NASPD/N inmates had no prior incarceration whatsoever.

An examination of the results concerning prior offence type (see Table 1 in Appendix J) revealed that property offenses were prominent among all disorder configurations. Sixty-one percent of the crimes committed by the ASPD/D group were property related. Fraud is characteristic of over a third of the NASPD/DA group (37.8%) and public morals convictions were numerous among inmates in the NASPD/D group

(31.6%).

A more global look at all eight disorder configurations reveals that antisocial inmates with concurrent drug and alcohol abuse/dependence (35.4% of total sample) are responsible for the bulk of convictions. Fifty-seven percent of all drug related convictions were received by this group, as well as 53% of all robberies, 52% of all assaults, 52% of all alcohol related convictions and 49% of all escape convictions. Over half of all sexual convictions were received by the NASPD/N group and a quarter of all fraud convictions (property 2) by the NASPD/DA group. In all, the ASPD/DA inmates accounted for 39.3% of all convictions received prior to current term by inmates in this sample.

The NASPD/DA group was more likely to have had homicide, arson and weapons convictions than the ASPD/DA group. No significant differences were noted between ASPD/D and NASPD/D, ASPD/A were more likely to have robbery, drug related, property and escape convictions than the NASPD/A group.

The ASPD/N inmates predominated significantly over the NASPD/N inmates for robbery, drug related, property, fraud, traffic, weapon and public morals convictions. None of the pairwise comparisons yielded significant differences with respect to prior violent convictions.

The only significant difference noted with respect to

current term was between the ASPD/N and NASPD/N groups on number of current convictions. Most NASPD/N inmates (84.6%) had one to five current convictions compared to less than half (43.5%) of the ASPD/N inmates. The latter tended to have more than five convictions, with 26.1%, 17.4% and 13% in the 6-10, 11-15 and 16 or more range respectively. It is noteworthy that most inmates from all groups with the exception of NASPD/D and ASPD/D are currently incarcerated for 97 months or more.

A global look at the disorder configurations (see Table 2 in Appendix J) and their current convictions shows that ASPD/DA inmates were responsible for 55% of all public morals convictions, 53.5% of all traffic convictions, 46% of all robbery convictions, 43.6% of all property convictions, 36% of all fraud convictions and 26.7% of all homicide convictions. In summary, the convictions received by the ASPD/DA inmates accounted for 42% of all current convictions.

Furthermore, property convictions predominated for all antisocial personality configurations. Among the nonantisocial inmates, 46% of the convictions received by the NASPD/D inmates were for property crimes. Thirty-four percent of the convictions received by the NASPD/DA inmates were fraud related.

The only significant differences with respect to the type of current conviction were noted in the pairwise

comparisons of the NASPD/A and ASPD/A, and ASPD/N and NASPD/N groups. The ASPD/A inmates were more likely to have robbery and property convictions than the NASPD/A inmates. The latter, however, were more likely to have sexually related convictions (22.8%) compared to 7.5% of the ASPD/A inmates. With the exception of homicide offenses in the NASPD/N group, the ASPD/N group were significantly more likely to have robberies, assaults, property and weapons convictions. None of the pairwise comparisons yielded significant differences with respect to whether or not inmates had a current conviction for a violent offence.

Criminal history loglinear analysis

A four way frequency analysis was performed to develop a hierarchical loglinear model of criminal history.

Variables analyzed were whether or not the inmate was antisocial (personality type) (1), whether or not there was prior incarceration (2), whether or not there was a prior conviction for a violent offence (3) and substance use disorder with four levels (4), none, alcohol only, drug only, drug and alcohol.

Upton (1991) has recommended that interpretation of significant effects be made via the use of proportions as indicated in the marginal subtables accompanying each model. Effects were also rank ordered according to the size of their standardized parameter estimates. The standardized parameter estimates are obtained by dividing the parameter estimates (lambdas) by their standard error which yields a Z value. Reference will be made to these standardized parameter estimates, which indicate the importance of an effect in influencing the frequency in a cell, where necessary. Effects with Z values exceeding 1.96 in absolute value can be considered significant at the .05 level, those exceeding 2.58 are significant at the .01 level, and those exceeding 3.30 are significant at the .001 level. Standardized residuals are also helpful in evaluating the adequacy of the chosen model for fitting the observed frequency in that cell (Tabachnick & Fidell, 1989).

A saturated model which encompassed all four variables was first developed with subsequent models produced by backward elimination using rejection criteria of $p < .05$. Stepwise selection by simple deletion of effects using SPSS/PC+ produced a model which included all first order effects, four of six possible two way associations and one of four possible three way associations. The model had a likelihood ratio $G^2(14) = 17.27$, $p = .24$ indicating a good fit between observed and expected frequencies generated by the model. The most deviant cell is for NASPD/A inmates who had no prior incarceration but did have a prior conviction for a violent offence, with 1.7 more cases observed than expected and standardized residual of $z = 1.44$. A summary of this model can be found in Appendix K with results of tests of significance (partial likelihood ratio X^2) and loglinear parameter estimates in raw and standardized forms.

First order effects included: (a) personality type, (b) substance use, (c) prior incarceration, (d) prior conviction for a violent offence. Second order effects included (a) substance use by personality type, (b) prior incarceration by substance use, (c) prior incarceration by personality type, (d) prior incarceration by prior violent conviction. The third order effect was personality type by substance use by prior incarceration. Tables 14 through 17 indicate the proportions with respect to first order effects.

Most of the inmates (65.4%), met the criteria for a definite diagnosis of antisocial personality disorder. Seventy-seven percent of inmates had prior incarceration and 59.3% of all inmates had at least one conviction for a violent offence. Forty-one percent of all inmates met the criteria for concurrent drug and alcohol abuse/dependence, 26.9% for alcohol abuse/dependence only and 8.5% for drug abuse/dependence only. Almost a quarter (22.9%) did not meet any of the criteria for a substance use disorder.

An examination of the rank ordered effects according to the size of their standardized parameter estimates (see Appendix K) clearly shows that prior incarceration, with a standardized parameter estimate of 6.004, is the strongest predictor of cell frequency in the criminal history model. This indicates that prior incarceration is very likely to occur alone among these inmates. Personality type, however, was the weakest predictor, with a standardized parameter estimate of .667, clearly non-significant but retained in the model as it is a component of a significant higher

Table 14

Marginal subtable: personality type first
order effect

	Ontario inmates	
	(N=327)	
Personality type	<u>n</u>	<u>%</u>
<hr/>		
Antisocial	214	65.4
Nonantisocial	113	34.6
Total	327	100.0
<hr/>		

Table 15

Marginal subtable: substance use first
order effect

	Ontario inmates	
	(N=327)	
Substance use	<u>n</u>	%
<hr/>		
None	75	22.9
Alcohol	88	26.9
Drug	28	8.5
Drug+Alcohol	136	41.6
Total	327	100.0

Table 16

Marginal subtable: prior incarceration first
order effect

	Ontario inmates	
	(N=327)	
Prior incarceration	<u>n</u>	%
<hr/>		
Yes	252	77.1
No	75	22.9
Total	327	100.0

Table 17

Marginal subtable: prior violent conviction
first order effect

	Ontario inmates	
	(N=327)	
Prior violent conviction	<u>n</u>	%
<hr/>		
Yes	194	59.3
No	133	40.7
Total	327	100.0

order association (the partial test had shown personality type to be significant with the other variables in the model held constant). This non-significance shows that antisocial personality (in this model) is not likely to occur alone among these inmates.

Tables 18 through 21 indicate the proportions with respect to the second order effects. Of the inmates who met the criteria for antisocial personality disorder, 54% also met the criteria for concurrent drug and alcohol abuse/dependence and a quarter (24.8%) met the criteria for alcohol abuse/dependence. Of the inmates who did not meet the criteria for antisocial personality disorder, almost half (46%) did not meet any of the criteria for a substance use disorder. The standardized parameter estimates for this effect confirm the importance of these proportions to the model. They indicate that nonantisocial inmates are not likely to have a substance use disorder and that antisocial inmates are likely to have both drug and alcohol disorders. The standardized parameter estimate for nonantisocial/no substance use disorder was 3.320 and 1.967 for antisocial/drug and alcohol disorders.

Prior incarceration was associated with substance use disorder. Of the inmates who had prior incarceration, half had concurrent drug and alcohol abuse/dependence (49.6%) and almost a quarter (24%) had alcohol abuse/dependence. Of those who had no incarceration prior to current term, 44%

2

PM-1 3½"x4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

Table 18

Marginal subtable: personality type by substance use
second order effect

Substance use	Personality type			
	NASPD		ASPD	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
None	52	46.0	23	10.7
Alcohol	35	30.9	53	24.8
Drug	6	5.3	22	10.3
Drug+Alcohol	20	17.7	116	54.2
Total	113	100.0	214	100.0

Note. ASPD=antisocial personality disorder; NASPD=nonantisocial personality disorder.

Table 19

Marginal subtable: substance use by prior incarceration
second order effect

Substance use	Prior incarceration			
	No		Yes	
	<u>n</u>	%	<u>n</u>	%
None	33	44.0	42	16.7
Alcohol	27	36.0	61	24.2
Drug	4	5.3	24	9.5
Drug+Alcohol	11	14.7	125	49.6
Total	75	100.0	252	100.0

did not meet the criteria for a substance use disorder while 36% met the criteria for alcohol abuse/dependence. Meeting the criteria for a positive diagnosis of antisocial personality was related to prior incarceration. Ninety percent of antisocial inmates had prior incarceration compared to 51.3% of nonantisocial inmates.

Prior incarceration was associated with prior conviction for a violent offence. Of the inmates who had prior incarceration, 73% had at least one prior conviction for a violent offence. Of the inmates with no prior incarceration, 86.7% had no prior convictions for a violent offence.

Figure 1 (see Appendix K) illustrates the significant three way association between personality type, substance use and prior incarceration.

An examination of Table 22 shows that antisocial inmates had high rates of prior incarceration regardless of substance use disorder type. Nonantisocial inmates were less likely than their antisocial counterparts to have had prior incarceration when they had no substance use disorder, alcohol only and drug only disorders. With concurrent alcohol and drug abuse/dependence, however, a vast majority (90%) had prior incarceration, comparable to the antisocial inmates. This would indicate that the personality disorder is less influential on prior incarceration than the substance use disorder.

Table 20

Marginal subtable: prior incarceration by personality type
second order effect

Prior incarceration	Personality type			
	NASPD		ASPD	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
No	55	48.7	20	9.4
Yes	58	51.3	194	90.6
Total	113	100.0	214	100.0

Note. ASPD=antisocial personality disorder;
 NASPD=nonantisocial personality disorder

Table 21

Marginal subtable: prior incarceration by prior violent conviction second order effect

Prior violent conviction	Prior incarceration			
	No		Yes	
	<u>n</u>	%	<u>n</u>	%
No	65	86.7	68	26.9
Yes	10	13.3	184	73.1
Total	75	100.0	252	100.0

Although significant by the partial test and retained during the screening procedure because all three way associations combined and all three and four way associations combined reached the .05 level, the standardized parameter estimates for the third order effect are not significant due to the influence of the other variables in the model. This interaction, therefore is best interpreted using proportions as seen in Table 22. None of the other higher order associations reached statistical significance.

Although the previous Chi Square test had shown antisocial inmates were significantly more likely than nonantisocial inmates to have at least one prior conviction for a violent offence, it will be recalled that further breakdown of this relationship between users and non users, as well as pairwise comparisons between ASPD and NASPD matched on substance use did not yield any significant differences.

As the loglinear analysis encompasses all these finer breakdowns in the model building process, no significant association between prior conviction for a violent offence and personality type was found in the final model. Prior conviction for a violent offense was also found to be independent of substance use disorder.

Table 22

Marginal subtable: personality type by substance use by
prior incarceration third order effect

		Prior incarceration		
Personality type and substance use		No	Yes	% prior incarceration
ASPD	None	0	23	100.0
	Alcohol	10	43	81.1
	Drug	1	21	95.4
	Alc+Drug	9	107	92.2
NASPD	None	33	19	36.5
	Alcohol	17	18	51.4
	Drug	3	3	50.0
	Alc+Drug	2	18	90.0

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.

Current criminal background loglinear analysis

A hierarchical log linear model was developed for current criminal background. Variables analyzed were whether or not the inmate was antisocial (personality type) (1), substance use disorder with four levels, none, alcohol only, drug only and drug and alcohol, (2) and whether or not there was a current conviction for a violent offence (3). Stepwise selection by simple deletion starting from the saturated model produced a model that included all first order effects, and one of three possible two way associations, that of personality by substance use. The model had a likelihood ratio $G^2(7) = 10.10$, $p = .18$. The most deviant cell of this model is for ASPD/DA inmates with no current violent conviction, with 7.9 fewer cases observed than expected and a standardized residual of $z = -1.55$. A summary of this model is located in Appendix L with results of tests of significance and loglinear parameter estimates in raw and standardized forms.

With respect to first order effects, whether or not an inmate had a current conviction for a violent offence was the strongest predictor of cell frequency in the current model, with a standardized parameter estimate of 6.330. The majority of inmates in the sample (77.7%) had at least one current conviction for a violent offence (see Table 23). The proportions with respect to the other significant first order effects, personality type and substance use have

already been reported in Tables 14 and 15.

The substance use by personality type two way association was significant here as it was in the criminal history model. It will be recalled that nonantisocial inmates were more likely not to have a substance use disorder (46% of nonantisocial inmates) and antisocial inmates were more likely to meet the criteria for concurrent drug and alcohol disorders (54% of antisocial inmates). The standardized parameter estimates were 5.547 and 3.951 for these effects respectively.

The previous Chi Square test had shown ASPD inmates were not significantly more likely than NASPD inmates to have at least one current conviction for a violent offence. Further breakdown of this relationship found no significant difference between antisocial users and non users as well as nonantisocial users and non users. Pairwise comparisons of ASPD and NASPD matched on substance use disorder had not yielded any significant differences either. This was confirmed by the loglinear results which indicated that current conviction for a violent offence was not associated with whether or not the inmate was antisocial nor with substance use disorder. The three way association was not statistically significant.

Table 23

Marginal subtable: current violent conviction first
order effect

	Ontario inmates (<u>N</u> =327)	
Current violent conviction	<u>n</u>	%
<hr/>		
Yes	254	77.7
No	73	22.3
Total	327	100.0

Follow-up outcome

To determine whether the personality pathology diagnosed according to DSM-III criteria predicted recidivism following release, all inmates were examined during a follow-up period which spanned from August 1988 to May 20th, 1990.

Of the 327 inmates in the sample, 160 (48.9%) were released at least once during the specified follow-up period. Almost half of antisocial inmates ($n=102$) and 51.3% of nonantisocial inmates ($n=58$) were released at least once during the follow-up time period. Table 24 presents the type of release according to disorder configuration.

Comparison between antisocial and nonantisocial inmates. To pinpoint recidivism risk with respect to antisocial personality disorder, antisocial and nonantisocial inmates were compared on recidivism indicators. Table 25 indicates the extent of recidivism for both antisocial and nonantisocial inmates.

Twenty percent of released antisocial inmates had violations/revocations of their release conditions compared to 17% of released nonantisocial inmates. Seventeen percent of antisocial inmates incurred new convictions during their release compared to 8.6% of nonantisocial inmates. In none of these comparisons were significant differences found.

Each group was assessed in terms of available time to recidivate between release date and cut off date (May

Table 24

Release type for inmates with and without lifetime
antisocial personality disorder

Release type	ASPD (<u>n</u> =214)		NASPD (<u>n</u> =113)	
	<u>n</u>	%	<u>n</u>	%
Mandatory supervision	71	33.2	30	26.5
Full parole	29	13.5	25	22.1
Sentence expiry	2	0.9	3	2.6
Not released	112	52.3	55	48.7
Total	214	100.0	113	100.0

Note. ASPD=antisocial personalty disorder;
NASPD=nonantisocial personality disorder.

Table 25

Recidivism indicators for released inmates with and without antisocial personality disorder

	ASPD		NASPD		
	(n=102)		(n=58)		
Recidivism indicators	<u>n</u>	%	<u>n</u>	%	p
<hr/>					
Parole/ms violation					
yes	21	20.6	10	17.2	
no	81	79.4	48	82.8	NS
Total	102	100.0	58	100.0	
New convictions					
yes	18	17.7	5	8.6	
no	84	82.3	53	91.4	NS
Total	102	100.0	58	100.0	

Note. ASPD=antisocial personality disorder;
NASPD=nonantisocial personality disorder.

20, 1990) to determine if a significant difference existed.

The Kolmogorov-Smirnov test showed that no statistically significant difference was present between the distributions of release dates for the two groups. Furthermore, the median release date for antisocial inmates was the 28th of August 1989 compared to the 20th of June 1989 for the nonantisocial inmates, a difference of only two months.

Given that antisocial and nonantisocial inmates had no significant difference in time available to offend, they were then compared on the mean number of months between date of release into the community and date of reincarceration following violation of release conditions.

Antisocial inmates had a mean of 4.7 months between release and reincarceration compared to 6.6 months for the nonantisocial inmates. This difference did not reach statistical significance.

Substance users versus non users. Of the inmates who were released during the follow-up period, 79.3% met the criteria for substance use disorder ($n=127$). Most substance users were released on parole (68.5%) while more than half of non users (54.5%) were released on mandatory supervision.

To determine whether substance users were more at risk of recidivism, users were compared to non users on the recidivism indicators. Although 22% of substance users violated their

Table 26

Recidivism indicators for released inmates with and without substance use disorder

	Substance users		Non substance users		
	(n=127)		(n=33)		
Recidivism indicators	<u>n</u>	%	<u>n</u>	%	p
<hr/>					
Parole/ms violation					
yes	28	22.0	3	9.1	
no	99	78.0	30	90.9	NS
Total	127	100.0	33	100.0	
New convictions					
yes	22	17.3	1	3.0	
no	105	82.7	32	97.0	*
Total	127	100.0	33	100.0	

*p<.05.

release conditions compared to 9.1% of non users, this difference did not reach statistical significance. Inmates were significantly different, however, in terms of new convictions incurred during the follow-up period. Seventeen percent of users were convicted of new offenses compared to 3% of non users (see Table 26). With respect to offence type committed during release, there was an insufficient number in each offence category to permit significance testing.

Antisocial inmates: substance users versus nonusers.

Released antisocial substance users ($n=95$) were compared to released antisocial non users ($n=7$) to ascertain the effect, if any, of the presence or absence of the substance use disorder. The presence of a substance use disorder had no significant effect on revocation/violation and new convictions. Twenty-one percent of antisocial users had at least one revocation compared to 14.3% of antisocial non users. Eighteen percent of users had a new conviction compared to none of the non users.

Nonantisocial inmates: substance users versus nonusers. As with antisocial inmates, the presence of a substance use disorder was not significantly related to whether or not new convictions or revocations/violations were incurred by nonantisocial inmates. Fifty-five percent of released nonantisocial inmates had met the criteria for a substance use disorder ($n=32$). A quarter of these violated

their release conditions compared to 7.7% of non users. Twelve percent of users incurred new convictions compared to 3.8% of non users.

Antisocial and nonantisocial inmates matched on substance use disorders. With the same substance use disorders in common, antisocial and nonantisocial inmates were compared to determine whether significant differences exist on recidivism indicators. Among those inmates who were released, none of the pairwise comparisons yielded significant differences with respect to violation/revocation of release conditions or new convictions.

Follow-up loglinear analysis

A three way frequency analysis was performed to determine the effect, if any, of substance use and personality type on the likelihood of revocation and/or new conviction. This analysis therefore only dealt with inmates who had been released at least once during the follow-up period ($n=160$). The dichotomous variables "revocation" and "new conviction" were collapsed to safeguard against too low cell frequencies. Variables analyzed were whether or not the inmate was antisocial (personality type) (1), substance use disorder type with four levels (2) and whether or not the inmate had at least one revocation/violation of his release conditions and/or at least one new conviction (3).

A saturated model was first developed using all

variables. Further stepwise screening by simple deletion produced a hierarchical model that included all first order effects and the substance use disorder by personality two way association. The model had a likelihood ratio $G^2 (7) = 9.25$, $p=.235$ indicating a good fit between observed and expected frequencies generated by the model. The most deviant cell was for NASPD/D inmates who had at least one revocation/conviction, with 1.3 more cases observed than expected and a standardized residual of $z = 1.61$. A summary of this model can be found in Appendix M.

With respect to first order effects (see Tables 27 through 30), the strongest predictor of cell frequency in this model was whether or not an inmate had a revocation/conviction following release, with a standardized parameter estimate of 4.406. Seventy-seven percent of all released inmates did not have a revocation/conviction.

Sixty-three percent of released inmates were antisocial while 40% of all released inmates suffered from drug and alcohol disorders, 28.8% from alcohol only, 20.6% did not meet the criteria for a substance use disorder and 10.6% met the criteria for a drug disorder only.

The substance use by personality type association was the second strongest predictor of cell frequency. Released nonantisocial inmates were not likely to meet the criteria for a substance use disorder (44.8% of nonantisocial inmates as per Table 30) while antisocial inmates were likely to

Table 27

Marginal subtable: revocation/conviction first order
effect

Released Ontario inmates		
(n=160)		
Revocation/conviction	<u>n</u>	%
<hr/>		
Yes	36	22.5
No	124	77.5
Total	160	100.0

Table 28

Marginal subtable: personality type first order effect

Released Ontario inmates		
(n=160)		
Personality type	<u>n</u>	%
<hr/>		
ASPD	102	63.7
NASPD	58	36.3
Total	160	100.0

Note. ASPD=antisocial personality disorder; NASPD=nonantisocial personality disorder.

Table 29

Marginal subtable: substance use first order effect

Released Ontario inmates		
(n=160)		
Substance use disorder	<u>n</u>	%
<hr/>		
None	33	20.6
Alcohol	46	28.8
Drug	17	10.6
Drug+Alcohol	64	40.0
Total	160	100.0

Table 30

Marginal subtable: personality type by substance use
second order effect

Substance use	Personality type			
	NASPD		ASPD	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
None	26	44.8	7	6.8
Alcohol	17	29.3	29	28.4
Drug	3	5.2	14	13.7
Drug+Alcohol	12	20.7	52	51.0
Total	58	100.0	102	100.0

Note. ASPD=antisocial personality disorder; NASPD=nonantisocial personality disorder.

meet the criteria for both drug and alcohol disorders (51% of antisocial inmates as per Table 30).

In this model, having a revocation/violation and/or new conviction was not associated with either personality type or substance use disorder.

The third order effect was not significant. Although substance users were found to be significantly different from non users for new convictions (see Table 26), this relationship was not significant in the overall model.

Summary loglinear analysis

The purpose of the summary model screening and selection was to determine whether prior incarceration, prior conviction for a violent offence and current conviction for a violent offence were associated with parole revocation/new conviction after release into the community.

Although one summary model was attempted with all six relevant variables (including personality type and substance use), this resulted in a model with zeros in 40% of its cells, an unacceptably high level which would have resulted in inadequate expected frequencies. To facilitate analysis, the substance use variable, originally with four levels, was dichotomized. All hierarchical models included the dichotomous variables personality type, substance use and revocation/conviction. Separate models were tested by adding the dichotomous variables prior incarceration

(Summary Model 1), prior conviction for violent offence (Summary Model 2) and current conviction for violent offence (Summary Model 3) one at a time to the personality type, substance use and revocation/conviction variables.

The initial screenings of the saturated models indicated that the second and first order effects were sufficient for modelling and therefore further screening was conducted with all the two way terms. The results indicate that revocation/conviction was not associated in any of the models with prior incarceration, prior conviction for a violent offence or current conviction for a violent offence.

Revocation/conviction was, however, associated with substance use in two of the models tested (Summary Models 1 and 3): Summary Model 1 included the variables personality type, substance use, revocation/conviction and prior incarceration. This model had a likelihood ratio G^2 (9) = 5.86, $p = .753$. All first order effects and the substance use by revocation/conviction as well as the substance use by personality type two way associations were retained. The most deviant cell was for NASPD inmates with no substance use disorder, no prior incarceration and no revocation/conviction. For this cell there were 2.5 more cases observed than expected with a standardized residual of $z = 1.08$. Parameter estimates in raw and standardized forms for all three summary models appear consecutively in Appendixes N, O and P.

With respect to first order effects in Summary Model 1, the substance use first order effect was the strongest predictor of cell frequency, with a standardized parameter estimate of 4.501. This indicates that among released inmates a substance use disorder was very likely present by itself. Indeed, as per Table 31, 79.4% of released inmates met the criteria for a substance use disorder.

It will be recalled from Table 27 that 77.5% of released inmates had no revocation/conviction. Although 63.7% of released inmates met the criteria for antisocial personality disorder (see Table 28) , this first order effect was not significant by itself but was included in the model as it was part of a significant higher order association. Prior incarceration was significant as a first order effect as 76.9% of released inmates had prior incarceration (see Table 32).

With respect to the substance use/revocation two way association, Table 33 shows that among the 127 substance users who were released, 26% had a revocation. Among the inmates who were not substance users, only 9.1% had a revocation.

The substance use by personality type association remained significant as it has been in all the previous models. Indeed, 93.2% of released antisocial inmates met the criteria for a substance use disorder compared to 55.2% of released nonantisocial inmates (see Table 34).

Table 31

Marginal subtable: substance use first order effect

Released Ontario inmates		
	(n=160)	
Substance use disorder	<u>n</u>	%
<hr/>		
Yes	127	79.4
No	33	20.6
Total	160	100.0
<hr/>		

Table 32

Marginal subtable: prior incarceration first order effect

Released Ontario inmates		
(n=160)		
Prior incarceration	<u>n</u>	%
<hr/>		
Yes	123	76.9
No	37	23.1
Total	160	100.0

Summary Model 3 included the variables personality type, substance use, current conviction for a violent offence and revocation/conviction. This model had a likelihood ratio $G^2(9) = 9.00$, $p = .437$ indicating a good fit between observed and expected frequencies generated by this model. The most deviant cell was that of antisocial inmates with no current violent conviction and no revocation/conviction. The standardized residual was $z = 1.86$, with 2.4 more cases observed than expected. All first order effects and the substance use by personality type as well as the substance use by revocation/conviction were retained in the final model. The strongest predictor of cell frequency was the substance use first order effect with a standardized parameter estimate of 4.978.

The relevant proportions for the first and second order effects were already presented in Tables 31, 33 and 34. With respect to the significant first order effect of current violent conviction, 74.4% of released inmates had a current conviction for a violent offence (see Table 35).

It is interesting to add that in Summary Model 2 which included the variables personality type, substance use, revocation/conviction and prior violent conviction, the latter was not significant as a first order effect and was not included in any higher order associations. Stepwise screening resulted in this variable being altogether removed from the final model.

Table 33

Marginal subtable: substance use by revocation/conviction
second order effect

Revocation/conviction	Substance use			
	Yes		No	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	33	26.0	3	9.1
No	94	74.0	30	90.9
Total	127	100.0	33	100.0

Table 34

Marginal subtable: substance use by personality type
second order effect

Substance use	Personality type			
	NASPD		ASPD	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Yes	32	55.2	95	93.2
No	26	44.8	7	6.8
Total	58	100.0	102	100.0

Table 35

Marginal subtable: current violent conviction first
order effect

Released Ontario inmates		
(n=160)		
Current violent conviction	<u>n</u>	%
<hr/>		
Yes	119	74.4
No	41	25.6
Total	160	100.0
<hr/>		

Discussion

Several questions were put forth at the outset of this research endeavour, questions for which some answers can now be provided. Of interest in a descriptive sense were the substance use disorders that were typical of inmates who met the criteria for antisocial personality disorder and those who did not.

The findings concur with those of Collins et al. (1988) that inmates with antisocial personality disorder are more likely to suffer from a substance use disorder than nonantisocial inmates. Antisocial inmates met the criteria for, in order of frequency, concurrent drug and alcohol abuse/dependence, followed by alcohol abuse/dependence, no substance use disorder and then drug abuse/dependence. The fact that they were least likely to meet the criteria for drug abuse/dependence agrees with the findings of previous research in this area, namely Helzer and Pryzbeck (1988), Lewis et al. (1983), Robins (1966) and Schuckit et al. (1977). Nonantisocial inmates were more likely not to meet the criteria for any substance use disorder. The next most frequent diagnosis was alcohol abuse/dependence, followed by concurrent drug and alcohol disorders and then drugs only. For both antisocial and nonantisocial inmates therefore, alcohol problems ranked in second place while drug disorders were the least common.

It was hypothesized that inmates with antisocial

personality disorder and a substance use disorder would report more antisocial personality symptoms than antisocial inmates not meeting the criteria for a substance use disorder. The findings support this hypothesis exclusively for childhood conduct disorder symptoms and in that respect agree with those of Collins et al. (1988) who concluded that substance use increased antisocial personality symptomatology. Among antisocial inmates, substance users reported more antisocial personality symptoms than non users. The results indicate, however, that only five of twelve conduct disorder groups were significantly more common among antisocial users. An unexpected finding is that antisocial substance users were not significantly different from antisocial non substance users on any of the adult behaviour problem groups. By way of explanation, it is conceivable that by collapsing the different types of substance use disorders under one umbrella, important differences are inadvertently obscured. If this is not the case however, then the results would lead one to believe that during childhood antisocial substance users are not that much different from antisocial non users and even less so in adult life. Whether or not substance use disorder is present would seem to have little effect on the frequency of reporting antisocial personality symptoms.

When substance use disorder is divided into four levels, none, alcohol only, drug only and drug and alcohol,

inmates with ASPD/DA frequently report more childhood and adult symptoms than the other disorder configurations. This supports Collins et al.(1988) who found that inmates meeting the criteria for antisocial personality disorder with concurrent drug and alcohol disorders had the highest rates of antisocial personality disorder symptomatology compared to groups with no substance use disorder or drug only or alcohol only.

Given the established influence of substance use on antisocial personality symptomatology, it was hypothesized that nonantisocial substance users would also report more symptoms of antisocial personality than nonantisocial non users. This was confirmed by the findings. Among nonantisocial inmates, three of twelve childhood symptoms were more common to nonantisocial users than nonantisocial non users. Surprisingly, users and non users were not differentiated by their drinking or drug use before age 15. As adults, users were more likely to have non-traffic arrest, marital/relationship problems and traffic offenses than non users. This is indicative of some continuity from childhood to adulthood yet because there was no difference between the groups before age 15 on drunk/drug use, this suggests that the symptoms of the conduct disorder are present before the development of the substance use disorder. It is safe to assume that the presence of a substance use disorder has the effect of increasing the

reporting of antisocial personality symptoms in individuals who are not antisocial according to DSM-III criteria.

Another question addressed the effect of antisocial personality disorder when antisocial and nonantisocial inmates were matched according to their substance use disorder. The results reveal that antisocial and nonantisocial inmates sharing drug abuse/dependence diagnoses (ASPD/D and NASPD/D) are quite similar in their childhood antisocial personality symptomatology reporting patterns (except for four symptom groups) and were only differentiated by the lying behaviour problem group as adults. This indicates that NASPD/D inmates approach the frequency with which ASPD/D inmates report their antisocial personality symptoms.

A somewhat different pattern emerged for those inmates with concurrent drug and alcohol abuse/dependence (ASPD/DA and NASPD/DA). ASPD/DA inmates significantly predominated over NASPD/DA inmates on ten of twelve conduct disorder groups. After age 18, however, it is interesting to note that the only two symptoms that differentiate the groups are marital/relationship problems and violence, in favour of the ASPD/DA inmates. It would seem therefore, that two groups of inmates who are originally very different in childhood approach similarity in their antisocial personality symptomatology as adults. It is plausible that the effect of the combined drug and alcohol disorders is to increase

the reporting of antisocial personality symptoms in individuals who were diagnosed as definitely negative for antisocial personality disorder. Antisocial and nonantisocial inmates diagnosed with alcohol abuse/dependence or those who did not meet the criteria for substance use disorder are quite different in the frequency with which they report conduct disorder groups and remained for the adult behaviour problem groups. In summary, it seems that the presence of drug abuse/dependence by itself or the presence of both drug and alcohol abuse/dependence are apt to encourage more frequent antisocial behaviour than the presence of either alcohol abuse/dependence or the personality disorder by itself (with no substance use disorder).

Given the history of continuous and chronic antisocial behaviour which characterizes individuals with antisocial personality disorder, it was hypothesized that inmates' criminal careers could be quantitatively and/or qualitatively different, shaped by either the antisocial personality disorder, the substance use disorder or both.

The results indicate that antisocial personality disorder and substance use disorder are in fact both separately and together, responsible for more intense contact with the criminal justice system. More prior convictions and longer histories of prior incarceration distinguished inmates who met the antisocial personality

disorder criteria from those who did not. This agrees with the findings of Schuckit et al. (1977) who concluded that inmates diagnosed with antisocial personality had more extensive criminal histories compared to inmates not receiving this diagnosis.

Furthermore, the presence of a substance use disorder, regardless of existing personality pathology, also contributed in some respects to inmates' past criminal careers. Substance users held more prior convictions and more prior months incarcerated than non users. No significant differences were found, however, on current criminal background variables between users and non users, supporting the findings of Hodgins and Côté (1990).

Among antisocial inmates, it is interesting to note that substance users were not that much different from non users on the criminal career variables. This is perhaps indicative of a pervasive antisocial personality effect over and above any influence a concurrent substance use disorder may have. Alternatively, the collapsing of the substance use disorder types has obscured differences which otherwise would be apparent. Nevertheless, this pattern corresponds to that noted earlier for antisocial substance users and antisocial non users where no differences were found on adult behaviour problem groups. Among nonantisocial inmates, the presence of a substance use disorder played a significant role by contributing to more prior convictions

and prior times incarcerated.

When inmates are matched on substance use disorder, be it alcohol only, drug only, drug and alcohol or no substance use disorder, the antisocial inmates consistently fared worse than the nonantisocial inmates. Furthermore, of the eight disorder configurations created, antisocial inmates with concurrent alcohol and drug abuse/dependence often had the most extensive criminal careers and were responsible for the bulk of convictions.

The results of the loglinear analysis suggest that antisocial inmates are no more likely than their nonantisocial counterparts to have had a prior conviction for a violent offence or a current conviction for a violent offence, even when substance use disorder is considered. Collins et al. (1988) had found that incarceration for a violent offence was not a significant discriminator between antisocial inmates with and without substance use disorders. The fact that antisocial inmates reported more symptoms of violent behaviour as per the DSM-III criteria but were not more likely to have a conviction for a violent offence raises an issue with respect to the DIS. This discrepancy suggests that the DIS questions designed to tap into violent behaviour do not correspond to or are not measuring the violent behaviour which eventually leads to a criminal conviction. In effect, the same conviction type patterns are noticeable throughout, regardless of the groups under

scrutiny. Property related convictions, as well as robberies, alcohol, drug and public morals convictions are more frequent among the antisocial inmates, inmates who meet the criteria for a substance use disorder and inmates who satisfy the criteria for both. Nonantisocial inmates displayed similar offence types yet at lower frequencies than the ASPD inmates.

The loglinear results confirm that antisocial inmates are more likely to have had a prior incarceration than nonantisocial inmates. Substance use is also associated with prior incarceration, with alcohol only or concurrent drug and alcohol disorders predisposing to prior incarceration, more so than no substance use disorder or drug only.

The three way association between personality type, substance use and prior incarceration clearly shows the effect of concurrent drug and alcohol abuse/dependence. When nonantisocial inmates are diagnosed with concurrent drug and alcohol disorders, they are almost as likely to have had prior incarceration as antisocial inmates with concurrent drug and alcohol disorders. This suggests that the presence of concurrent drug and alcohol disorder almost equally affects both inmates with and without antisocial personality where prior incarceration is concerned. Substance use was not associated with prior or current conviction for a violent offence. There is some support for

this finding in the work of Collins and Schlenger (1988). In their study of convicted male felons they found that subjects meeting the criteria for alcohol abuse/dependence were not more likely to have committed a violent offence than those who did not meet the criteria. They did find, however, that when subjects were under the influence of alcohol at the time of the offence, they were more likely to have committed a violent offence than those who were not under the influence of alcohol. It is not known whether this would have been the case in the present study yet it does suggest possible avenues for further research.

It was proposed that recidivism could be a function of antisocial personality disorder, type of substance use disorder or both. Given that the results pointed to more serious criminal careers among antisocial inmates, it was expected that the latter would pose a greater risk of recidivism, especially when a concurrent substance use disorder was diagnosed. The post-release results indicate, however, that antisocial inmates are no more likely than nonantisocial inmates to recidivate after their first release, even when type of concurrent substance use disorder is considered. This finding does support the work of Hart, Kropp and Hare (1988) who found that the DSM-III diagnosis of antisocial personality disorder was not predictive of recidivism in paroled prisoners.

There are some possible explanations for the finding of

non significance in the present study. Only the first release during the follow-up period was considered, and in some cases there were several releases and several reincarcerations. If all these releases and reincarcerations had been taken into account, it may have been possible to detect a pattern that distinguished antisocial from nonantisocial inmates. The data however, did not permit an accurate record of multiple releases and reincarcerations. The follow-up time period, although indicative of a non significant trend of increased recidivism among antisocial inmates compared to nonantisocial inmates, was quite possibly too short in the time allowed to recidivate. A longer follow-up period may have produced significant results.

Another explanation is the diminishing of criminal behaviour as an antisocial individual ages. According to the DSM-III, "after age 30 the more flagrant aspect may diminish, particularly sexual promiscuity, fighting, criminality and vagrancy" (APA, 1980, p.318). To ascertain if this was the case, released antisocial inmates were divided into two groups, age 30 and under and over age 30. Neither group was significantly different on whether or not they violated their release conditions not whether or not they acquired new convictions. This leaves some doubt, therefore, in the ability of the DSM-III diagnosis of antisocial personality disorder to predict recidivism.

Revocation/conviction was not associated with prior incarceration, prior violent conviction or current conviction for a violent offence. This lack of association should be interpreted with caution. Contact with the criminal justice system through conviction and incarceration serves to filter violent behaviour. Therefore, the violent behaviour which eventually results in a conviction is included within a wider net of violent behaviour which is undetected or does not proceed beyond the arrest stage. Consequently, the relationship between violent behaviour and other variables in this study is moderated somewhat by this filtering process. Including arrests for violent offenses may have produced different results.

When substance use was collapsed to form a dichotomous variable, however, revocation/conviction was related to substance use where users were more likely to revoke and/or incur a new conviction than non users. The large majority of non users did not violate the conditions of their release or incur a new conviction.

There are further limitations to the DSM-III which are worthy of mention. The DSM-III neglects to distinguish those individuals who repeatedly demonstrate antisocial behaviour from those who occasionally transgress and therefore it is important that distinctions be made with respect to chronicity, perhaps between low, moderate and high levels of antisocial behaviour. Furthermore, any

combination of symptoms, as long as three are satisfied in childhood and four in adulthood, are sufficient for the diagnosis of antisocial personality disorder according to the DSM-III. If critical symptoms could be identified, this could further help to distinguish those who meet the minimum requirements for the diagnosis from those who repeatedly display these behaviours and who would be considered "hard core" antisocial personalities.

The DSM-III does not include a "possibly antisocial" category but one is created by limiting the criteria to two positive conduct disorder groups and three positive adult behaviour problem groups. In this study, inmates who met these criteria were excluded from the final sample. Reasons for this deletion are both theoretical and practical in nature. Theoretically, not meeting the criteria from the full blown disorder sets these inmates apart from those who do. They form a group which technically speaking does not belong to either the antisocial or the nonantisocial group. On a practical basis, including this group with either the antisocial inmates or the nonantisocial inmates may have produced misleading results. A total of 58 inmates in this study met the criteria for "possibly antisocial". This limited number would have rendered cell sizes prohibitively small for statistical analysis if this group had been studied separately from the other two. Future studies with larger sample sizes could, however, include the "possibly

antisocial" inmates, to determine the interplay between personality disorder, substance use disorder symptomatology and inmates' criminal careers in this "grey" zone.

There are inherent problems with the use of the DIS on an inmate population. The DIS relies heavily on the veracity of subject's self reports and personal memories. The fact that lying is a symptom of antisocial personality disorder, one may wonder how truthful the accounts are. File reviews as well as legal records and family interviews may help bolster the validity of the antisocial personality diagnosis by providing confirmatory evidence in support of the subject's account. With the stigma attached to mental illness, it is plausible that symptoms are withheld or minimized. Whether the survey was presented to inmates as a general health study or rather a survey of psychiatric disorders could have important ramifications on the inmates' perceptions of what is being asked of them and the responses they are likely to give.

There are several clinical implications that can be drawn from the present findings: since antisocial inmates are more frequently diagnosed with a substance use disorder than nonantisocial inmates, clinicians should investigate for the likely presence of substance use disorders, particularly concurrent drug and alcohol abuse/dependence and alcohol abuse/dependence in confirmed antisocial inmates.

Because inmates who meet the criteria for a substance

use disorder report more antisocial symptoms than inmates not suffering from a substance use disorder, any program aimed at treating substance use problems should include a component for managing antisocial behaviour. This is substantiated by research which has shown that treatment programs which do not address the accompanying personality disorder can have little effect on the personality pathology or criminal behaviour (Abram, 1990).

... finding that ASPD/D inmates and NASPD/D are very similar with respect to antisocial personality symptoms, especially as adults as well as ASPD/DA and NASPD/DA inmates may have some important ramifications where treatment is concerned. Not only should further research effort be directed toward the deciphering of this relationship but clinicians should be alert to the similar behaviour patterns in both groups.

Because of the DSM-III's overinclusiveness, it is plausible that alcoholic or drug abusing/dependent individuals have exhibited criminal behaviour as a result of substance use and were erroneously labelled "antisocial". Alternatively, when a true antisocial individual is also a substance user the main problem is the personality disorder, which will likely persist even when the substance use disorder is arrested (Schuckit, 1973). The issue is further compounded by the instructions in the DSM-III which state "when substance abuse and antisocial behaviour begin in

childhood and continue into adult life, both Substance Use Disorder and Antisocial Personality Disorder should be diagnosed if the criteria for each disorder are met, regardless of the extent to which some of the antisocial behaviour may be a consequence of the Substance Use Disorder" (APA,1980, p.319). According to the literature, however, this distinction is the key to differential process and prognosis. Schuckit (1973) notes that "sociopathic alcoholics have poorer prognosis than primary alcoholics (...). Alcoholism when added to an already established life style of the sociopath, complicates an already complex picture and makes treatment most difficult"(p.161-162). Liskow et al. (1991) confirm that the course of alcoholism was significantly worse for antisocial alcoholics compared to alcoholics with no other psychopathology: they had "an earlier age of onset of drinking and alcohol problems and a more severe course of alcoholism (for example, more likely to have experienced medical problems, behaviour problems due to drinking, blackout and delirium tremens)"(p.67). It is advisable therefore that treatment be geared towards each subtype based on the evidence which supports the distinction between substance users who commit a limited number of antisocial acts and antisocial individuals who are heavy substance users. It is important to determine whether the behaviour of interest occurs when substance use is excluded. For example, did the subject start fights when sober? In

this manner, substance use could be used as an exclusion criterion in much the same way as mania and schizophrenia are currently used in the DSM-III criteria for ASPD.

The use of the DIS has permitted the CSC to gauge the incidence of psychiatric and behavioral disturbance among federally incarcerated male inmates in Canada. The DIS, however, does not provide for treatment recommendations and therefore it is believed that the CSC could have followed up the DIS interviews with another assessment, similar to that conducted in the Michigan study (Neighbors et al., 1987), to determine what treatment was warranted and inmates' levels of motivation towards intervention. It is further recommended that the DIS database which has now been created be kept current and expanded for all inmates entering the Canadian federal penitentiary system. This along with an assessment tool for treatment purposes would allow for both a prompt diagnosis followed by an informed intervention response.

The 5% of inmates who did not meet the diagnostic requirements in the national study for any psychiatric diagnosis should not be forgotten in this process, as stressed by Neighbors et al. (1987). Not meeting the diagnostic requirements for a diagnosis does not mean that no treatment or intervention is warranted.

There are several possible avenues for further research in this field. Post-release criminal activity could be

assessed, but rather than limiting the data to the first release, all releases and violations of release conditions during a specified follow-up period could be taken into account. This would perhaps provide sufficient information to gauge recidivism.

It would be interesting to further examine antisocial personality disorder and substance use disorder in light of the temporal onset of symptoms. This would allow researchers to determine to what extent drug and alcohol problems encourage antisocial behaviour, whether antisocial behaviour predates substance use or whether they are coexisting elements of a deviant lifestyle.

Institutional adjustment is another area could benefit from further research with respect to psychiatric disorders. Comparisons could be conducted between antisocial and nonantisocial inmates with concurrent substance use problems to determine the effect of the personality disorder and the substance use on institutional adjustment, as measured by institutional infractions, program involvement, response to vocational training, response to treatment and coping skills.

Further research could focus on the relationship between antisocial personality and classification. One could determine whether classification change is related to the antisocial personality diagnosis.

Treatment outcome could be examined to ascertain the

effect of different disorder configurations on the probability of success. Is personality pathology associated with poorer response to treatment? Does the treatment of substance users predict poorer outcome if antisocial personality disorder is also diagnosed? What is the effect, if any, when antisocial personality disorder and another concurrent personality disorder are diagnosed?

The antisocial personality disorder diagnostic category will be subjected to numerous adjustments in preparation for the DSM-IV. Some of the issues presented here will be addressed in this process. The DSM-III-R's cumbersome antisocial personality criteria have been subject to criticism as well as the fact that characteristics such as selfishness and lack of empathy to name but two have been neglected. In response to these criticisms, a shortened version of the DSM-III-R, to undergo field trials in the near future, has been created by Dr. Lee Robins and is being considered as a possible alternative to the existing criteria (Hare, Hart & Harpur, 1991). Although the shortened version of the DSM-III-R ASPD criteria includes more traits considered to be typical of the psychopath, it is surprising that lack of remorse was not included. As discussed in the literature review, McCord and McCord (1964) believed lovelessness and guiltlessness to be core traits of the psychopath and Cleckley's clinical profile of the psychopath (1955) includes lack of remorse or shame. Even

the DSM-III-R originally included three indicators of lack of remorse therefore it is difficult to understand the rationale for omitting this otherwise seemingly indispensable criterion from this abbreviated version. Perhaps some justification will be made for its exclusion at some time in the near future.

It can be estimated from the present study that 65% of federally incarcerated male inmates in the Ontario region would meet the diagnostic requirements for a definite diagnosis of antisocial personality disorder. According to the CSC, 75% of federally incarcerated male inmates in Canada would meet the diagnostic criteria for this personality disorder (wide criteria). These rates are higher than those of any study reviewed here with comparable inmate populations. These percentages are cause for concern and suggest that the DSM-III is overinclusive in its criteria. It should be noted that comments are reserved for the DSM-III, rather than the DSM-III-R (1987), because the DIS version used by the CSC provided diagnostic information according to the DSM-III criteria. The DSM-III-R was developed in 1987 and the criteria for antisocial personality disorder remained behaviourally based, with some changes to childhood symptoms, with the addition of use of a weapon, physical cruelty to animals and people, firesetting behaviour, and stealing with and without victim confrontation. Eliminated from the childhood symptoms were

trouble at school, expelled or suspended, poor grades, arrest and drunk/drug use. The adult criteria remain intact except for the addition of a trait based symptom, lack of remorse (APA,1987).

Instead of identifying those personality traits, as explained in the introduction to the personality disorders section of the DSM-III, that become maladaptive and result in antisocial personality disorder, the criteria list typical life events or behaviours believed to be characteristic of antisocial individuals. This diagnostic category serves only to "describe" criminal behaviour rather than diagnosing the core personality traits that lead to this behaviour.

The DSM-II had used personality traits rather than behaviours to describe antisocial personality disorder: "they are incapable of significant loyalty to individuals, groups, or social values. They are grossly selfish, callous, irresponsible, impulsive and unable to feel guilt or to learn from experience and punishment (...)". (APA,1968, p.43). These criteria, however, in contrast to those currently in use, yielded average rates of criminals diagnosed with ASPD of 30% (Wulach,1983). Unfortunately, these criteria proved to be low in reliability and validity prompting the development of behaviourally based criteria of the DSM-III (APA,1980). Presumably, it is easier for clinicians to agree on the behavioural manifestations of

antisocial personality disorder than on the causes of the behaviour in question (Hare et al., 1991). An increase in reliability was therefore achieved at the price of describing most criminals rather than the rarity or special case. In describing most criminals, how much is the DSM-III contributing to our understanding of antisocial behaviour?

The major failing of the DSM-III criteria is its blurring of any distinction between ASPD and criminality thus impeding differential prediction of future behaviour patterns. It is well known that psychological tests have fared poorly in the prediction of criminal behaviour (Carbonell, Megargee & Moorhead, 1984). The same can be said of psychiatric diagnoses, according to Guze (1976). The results of the present study are also indicative of difficulties in this area. Results using Hare's Psychopathy Checklist (PCL) and the Psychopathy Checklist Revised (PCL-R), however, have been encouraging in the prediction of recidivism. The PCL was administered in one study to 231 white male criminals prior to their release on MS or full parole. Inmates with high scores on the PCL were more likely to violate the conditions of their release (defined as a revocation or new conviction) than inmates with low scores. Moreover, the authors concluded that "the PCL predicts postrelease behaviour because it takes into account previous criminal history and because it measures the core personality traits (e.g., impulsivity, irresponsibility,

callousness, lack of empathy, guilt, or remorse, etc.) that may be responsible for many of the psychopath's enduring behavioral predispositions" (Hart, Kropp & Hare, 1988, p.231). In effect, the PCL is composed of two oblique factors: Factor 1 reflects traits considered fundamental to the concept of psychopathy such as lack of remorse, callousness, etc. Factor 2 reflects the aspects of psychopathy that are associated with an antisocial lifestyle (Hare et al., 1991). Factor 2 was found to be significantly more correlated with diagnoses of ASPD than Factor 1. This evidence clearly indicates that the criteria for ASPD are too behaviourally based and pay too little attention to traits underlying antisocial behaviour (Harpur, Hakstian & Hare, 1988). With high interrater reliability and valid measures of the behaviour and personality traits characteristic of psychopaths (Hare et al., 1991), the PCL-R may provide an indication of what lies ahead for the diagnosis of antisocial personality disorder. Bearing this in mind, a strong argument can be made for the use of the PCL-R in place of the current ASPD criteria. Alternatively, the PCL-R could be used as a supplement in the assessment process. Despite the shortcomings in the DSM-III's predictive abilities, the present study has provided interesting and important results that contribute to the literature in both the fields of psychiatry and correctional psychology, while offering impetus for future research.

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APPENDIX A

Special Instruction for Interviewers

4. At the time you were incarcerated, were you married, widowed, separated, divorced, or have you never been married?

Married	1
Widowed (Skip to Q.6)	2
Legally Separated (Skip to Q.6)	3
Divorced (Skip to Q.6)	4
Never married (Skip to Q.6)	5

5. At the time you were incarcerated, were you living with your (husband/wife)?

No	1
Yes (Skip to Q.7)	5

6. At the time you were incarcerated, were you living with someone as though you were married?

No	1
Yes	5

194. When was the last time you [SPECIFY: used (DRUG) every day, were dependent on (DRUG), were unable to cut down on (DRUG), ETC.]? I don't want to know whether it was in here or on the street. I just want to know the last time.

CODE MOST RECENT TIME POSSIBLE	Within last 2 weeks (SKIP TO INSTR. BEFORE Q.195)	1
	Within last month (SKIP TO INSTR. BEFORE Q.195)	2
	Within last 6 months (SKIP TO INSTR. BEFORE Q.195)	3
	Within last year (SKIP TO INSTR. BEFORE Q.195)	4
	Within last 3 years (SKIP TO Q.196)	5
	More than 3 years ago (ASK A)	

208. Do not ask this question: Have you ever been arrested since you were 18 years old for anything other than traffic violations? (Please enter a "YES" as the response).

208. A. As an adult, that is since you were 18 years old, have you been arrested more than once?

NO, JUST ONCE	2
YES, MORE THAN ONCE	5*

208. B. Do not ask this question: Have you ever been convicted of a felony? (Please enter a "YES" as the response).

223. How many months out of the last five years have you been without a job, even a prison job?

APPENDIX B

CRIMINAL HISTORY CODING GUIDE

COLUMN	KEYWORD	DESCRIPTION
1 - 4	SNA	subject number
6 - 12	FPS	Fingerprint Section Number
14 - 19	CVDATA	date of first adult conviction (yyymmdd)
21 - 22	CVDSA	# of <u>conviction dates</u> prior to current offense
24 - 25	CVSA	# of <u>convictions</u> prior to current offense

TYPE OF CRIMINAL SANCTION:

27	INCRA	prior incarceration? 0. no 1. yes
28 - 29	NINCRA	total # of times incarcerated
30 - 33	AINCRA	total # of months sentenced to incarceration (life = 9999)

TYPE OF CONVICTION:

35 - 36	HOMA	# of homicide convictions
37 - 38	ATMURA	# of attempted-murder convictions
39 - 40	WISEXA	# of violent-sexual convictions
41 - 42	VIOLA	# of violent convictions
43 - 44	SEXA	# of sexually-related convictions
45 - 46	ARSA	# of arson-related convictions
47 - 48	ROBBA	# of robbery convictions
49 - 50	ASSA	# of assault convictions

COLUMN	KEYWORD	DESCRIPTION
51 - 52	DRUGA	# of drug-related convictions
53 - 54	ALCOHA	# of alcohol-related convictions
55 - 56	PROP1A	# of property-related convictions
57 - 58	PROP2A	# of fraud-related convictions
59 - 60	TRAFFA	# of traffic-related convictions
61 - 62	ESCA	# of escape/unlawfully at large (UAL) convictions
63 - 64	WEAPA	# of weapon-related convictions
65 - 66	PUBMOA	# of public morals convictions
67 - 68	OTHA	# of other convictions

CURRENT CRIMINAL BACKGROUND CODING GUIDE

COLUMN	KEYWORD	DESCRIPTION
1 - 4	SNB	subject number
6 - 12	FPS	Fingerprint Section Number
14 - 19	CGDATB	current offense date (yyymmdd)
21 - 22	CVDSB	# of <u>current conviction dates</u>
24 - 25	CVSB	# of <u>current convictions</u>

TYPE OF CRIMINAL SANCTION:

27	INCRB	current incarceration? 0. no 1. yes
28 - 29	NINCRB	total # of times incarcerated
30 - 33	AINCRB	total # of months sentenced to incarceration (life = 9999)

TYPE OF CONVICTION:

35 - 36	HOMB	# of homicide convictions
37 - 38	ATMURB	# of attempted-murder convictions
39 - 40	WISEXB	# of violent-sexual convictions
41 - 42	VIOLB	# of violent convictions
43 - 44	SEXB	# of sexually-related convictions
45 - 46	ARSB	# of arson-related convictions
47 - 48	ROBBB	# of robbery convictions
49 - 50	ASSB	# of assault convictions
51 - 52	DRUGB	# of drug-related convictions
53 - 54	ALCOHB	# of alcohol-related convictions

COLUMNS	KEYWORD	DESCRIPTION
55 - 56	PROP1B	# of property-related convictions
57 - 58	PROP2B	# of fraud-related convictions
59 - 60	TRAFFB	# of traffic-related convictions
61 - 62	ESCB	# of escape/unlawfully at large (UAL) convictions
63 - 64	WEAPB	# of weapon-related convictions
65 - 66	PUBMOB	# of public morals convictions
67 - 68	OTHB	# of other convictions
70 - 75	ASDATB	assessment date (yymmdd)

APPENDIX C

FOLLOW-UP CODING GUIDE

COLUMN	KEYWORD	DESCRIPTION
1 - 3	SNA	Subject number
5 - 11	FPS	Fingerprint Section Number
13	RELEASE	Release during follow-up period? 0. no 1. yes
14 - 19	RELDATE	First release date (yyymmdd)
20	RELTYPE	Release type 1. mandatory supervision 2. full parole 3. sentence expiry
22	REVOCA	Revocation/violation during follow-up period? 0. no 1. yes
23 - 28	REVODAT	First revocation/violation date
30	CONVIC	Conviction during follow-up period? 0. no 1. yes
31 - 36	CONVDAT	First conviction date

TYPE OF CONVICTION:

38 - 39	HOMC	# of homicide convictions
40 - 41	ATMURC	# of attempted-murder convictions
42 - 43	WISEXC	# of violent-sexual convictions
44 - 45	VIOLC	# of violent convictions
46 - 47	SEXC	# of sexually-related convictions
48 - 49	ARSC	# of arson-related convictions
50 - 51	ROBBC	# of robbery convictions

COLUMN	KEYWORD	DESCRIPTION
52 - 53	ASSC	# of assault convictions
54 - 55	DRUGC	# of drug-related convictions
56 - 57	ALCOHC	# of alcohol-related convictions
58 - 59	PROP1C	# of property-related convictions
60 - 61	PROP2C	# of fraud-related convictions
62 - 63	TRAFFC	# of traffic-related convictions
64 - 65	ESCC	# of escape convictions
66 - 67	WEAPC	# of weapon-related convictions
68 - 69	PUBMOC	# of public morals convictions
70 - 71	OTHC	# of other convictions

APPENDIX D

SUPPLEMENTARY TO ALL CPIC CODING GUIDES**TYPES OF CONVICTIONS: DESCRIPTIONS****HOMICIDE (HOM):**

murder
manslaughter
infanticide
causing death by criminal negligence
involuntary homicide

ATTEMPTED MURDER (ATMUR):

attempted murder
attempted choking
choking

VIOLENT SEXUAL (VISEX):

sexual assault (rape)
sexual assault with a weapon
sexual assault causing bodily harm
attempted sexual assault (rape)
aggravated sexual assault (rape)

VIOLENT (VIOL):

criminal negligence
kidnapping
hostage taking
unlawful confinement
forcible confinement
forcible seizure
robbery with violence
torture

SEXUALLY-RELATED (SEX):

sexual interference
incest
buggery
procuring
gross indecency
indecent exposure
indecent assault

ARSON (ARS):

setting fire by negligence
setting fire to other substances
fraudulently burning personal property

ROBBERY (ROBB):

robbery
armed robbery

ASSAULT (ASS):

common assault
assault with a weapon
assault causing bodily harm
aggravated assault
unlawfully causing bodily harm
assaulting peace officer
causing bodily harm by negligence

DRUG (DRUG):

trafficking
possession under the NCA (Narcotic Control Act) and FDA (Food and Drug Act)
illicit use under the NCA and FDA
cultivating

ALCOHOL (ALCOH):

operation of motor vehicle with more than 80mg alcohol in blood

PROPERTY 1 (PROP1):

breaking and entering
attempted breaking and entering
theft
attempted theft
possession of stolen property
possession of burglary tools
possession of stolen credit card
wilful damage
damage to property

PROPERTY 2 (PROP2):

fraud
forgery
counterfeit
false pretences
use of stolen credit card
uttering
personation
make false statement with intent

TRAFFIC (TRAFF):

impaired driving
dangerous operation of motor vehicle
failure to stop at scene of accident
care or control of vehicle impaired
driving while disqualified

ESCAPE (ESC):

escape from lawful custody
prison breach
unlawfully at large

WEAPON (WEAP):

possession of a weapon for purpose of committing an offence
 carrying a concealed weapon
 careless use of firearm
 dangerous use of firearm
 possession of prohibited weapon
 possession of restricted weapon

PUBLIC MORALS (PUBMO):

contempt of court
 vagrancy
 false alarm
 skipping bail
 mischief
 fail to attend court
 perjury
 breach of probation
 fail to appear or comply with recognizance, summons, promise
 to appear, appearance notice
 resisting arrest
 causing disturbance
 permit premises to be used as common betting house

OTHER (OTH):

attempted suicide
 wearing disguise
 failing to provide necessities of life
 attempt to commit summary conviction offence

NOTE:

- "conspiracy" is to be coded according to the offence to which it applies

- parole or mandatory supervision violations/revocations are to be counted as incarcerations not as convictions

- probation breaches resulting in prison time are to be counted as incarcerations

- the dichotomous variables "prior violent conviction" and "current violent conviction" were created by denoting as violent the following conviction types: homicide, attempted murder, violent sexual, violent, sexual, robbery, assault, arson and weapon.

APPENDIX E

MEMORANDUM NOTE DE SERVICE

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DISTRIBUTION

Deputy Commissioner
Offender Policy and Program Development

DATE:

1988-03-05

PREVALENCE OF MENTAL DISORDER IN CORRECTIONAL SERVICE
OF CANADA INSTITUTION - RESEARCH PROJECT

The purpose of this memorandum is to keep you informed as to the progress of the project, and to forward to you material for distribution to the Wardens in your region.

The members of the National Headquarters Project team have asked me to express their appreciation for your co-operation in making staff available to attend the July 19 meeting in Ottawa. They were also most impressed by the caliber of the staff selected by the regions, their interest, enthusiasm and organizational skills are most impressive, and should facilitate the smooth progress of this most important study.

As requested in my memorandum of 1988-07-07, I would appreciate the administrative arrangements being made for the two people from your respective regions who have been DIS-trained, to attend the one week training session given by Price Waterhouse to their interviewers. These sessions will take place at the beginning of September. Specific arrangements will be communicated to the Regional Co-ordinators as early as possible. A contract amendment has been agreed to which sets out the respective responsibilities of Price Waterhouse and the Correctional Service of Canada regarding quality control. Correctional Service of Canada employees, who have observed the Price Waterhouse interviewer training, will randomly re-interview up to 4 inmates per interviewer.* The firm will accept the re-interviewers, compare the results with the original, and attempt to account for differences in order to maintain a high standard of validity and quality. This meets our objective of providing a mechanism for monitoring the contractor's level of performance in meeting the terms of the contract. While I appreciate that there is a significant time commitment demanded of a number of staff members, it is justified in order to ensure the best possible result.

Enclosed with this memorandum are copies of descriptions of the role of the Regional Co-ordinator, the role of the Institutional Co-ordinator, as well as a communication from Price Waterhouse to the Wardens.

You will be kept informed of the progress of the project on a regular basis through your regional co-ordinator.

James A. Phelps

NB/cb

Distribution:

Regional Deputy Commissioner, Atlantic
Regional Deputy Commissioner, Ontario
Regional Deputy Commissioner, Prairies
Regional Deputy Commissioner, Pacific

CORRECTIONAL SERVICE OF CANADA

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NATIONAL MENTAL DISORDER SURVEY

Role of the Regional Coordinator

The primary responsibility of the Regional Coordinators is to act as the primary contact point and liaison between the Institutions, the Region, and National Headquarters and where appropriate, the contractor; and

- to maintain ongoing contact with institutional coordinators throughout all phases of the data collection to ensure that problems with the consultants/interviewers are identified and resolved and/or brought to the attention of National Headquarters;
- to assist institutional coordinators in organizing the inmate interviews and resolving, where possible, at the institutional level, problems relating to the progress of the Study;
- to identify and report to National Headquarters significant problems with respect to the Study's progress, as they arise (slippage in interview schedules, quality assurance concerns etc.);
- to brief the Regional Deputy Commissioner and Wardens at all stages of the Study and its progress (purpose, process/procedures, progress, role of the institutional/regional staff, time frames, etc.) and ensure that the appropriate individuals/groups (inmate committees, USGE, Citizen's Advisory Committees) have been informed by the Warden or a designate.

CORRECTIONAL SERVICE OF CANADA
NATIONAL MENTAL DISORDER SURVEY

Role of the Institutional Coordinator

The contact person at each institution will be responsible for coordinating all logistical activities involved in conducting the interviews at his or her institution. This person should be available for the duration of the study, with a back-up person available in case of unforeseen absence. Local coordinators will be contacted by a senior representative from the contracting firm who will explain the study and make any specific arrangements for that institution. The following is a list of activities that institutional coordinators will be responsible for:

- acting as a liaison with the consulting firm to make arrangements and answer any questions;
- within operational constraints, ensuring that an adequate number of interview rooms are available, and that these rooms be accessible, secure, and sufficiently private to assure confidentiality;
- meeting with the interviewers upon their initial arrival at the institution, and orientate them to the areas of the institution they will need to be familiar with (interview rooms, washrooms, cafeteria, etc.) as well as to the procedures they should follow in routine and emergency situations;
- providing assistance in organizing interview schedules, and arrange for the timely movement of inmates, such as ensuring appropriate passes are issued. (Note: an effort should be made to schedule more cooperative inmates for initial interviews as this will help ensure a positive launch of the project in the institution);
- ensuring that the appropriate arrangements are made to maintain the security of the interviewer and the institution;
- informing the interviewers of the non-availability of inmates (in case of transfer, temporary absence or conditional release, or due to special institutional events), and when and where the inmate will be available for interviewing;
- providing assistance to interviewers should logistical problems arise;
- maintaining regular contact with the regional coordinator to report on the progress of interviews and to relay any concerns regarding the interviews.

APPENDIX F

Fact Sheet for Wardens

As you know, Price Waterhouse will be carrying out a study to determine the incidence of psychiatric and behavioural disturbance among federally incarcerated offenders. The study is scheduled to begin in early September and continue for a period of eight weeks. We would like to take this opportunity to inform you and your institution of our plans.

A number of Correctional Service Canada (CSC) staff will be directly or indirectly involved in the organization of the study. A Regional Coordinator has been assigned to each region in order to ensure that information flows freely between institutions, Headquarters and Price Waterhouse. We are requesting that the wardens of each institution assign an Institutional Coordinator for the study. This person will serve as a liaison person to help with the day to day logistics of carrying out the study in that institution. The roles and responsibilities of each of these CSC staff are outlined in detail on the attached summary.

We also request that wardens notify the relevant inmate committees in their institution of the study as the cooperation of inmates is key to the success of the project.

We are now in the process of selecting interviewers to carry out over 1,000 interviews with inmates across Canada. In most cases, interviewers are being recruited from the general vicinity in which interviews will need to be conducted. Those individuals selected will then be subjected to an enhanced reliability check as well as an intensive one week training program.

The week of extensive training in the use of the DIS will involve lectures, mock interviews, as well as how to behave in an institution (in a variety of situations). This training will take place in two centralized locations - Abbotsford, B.C. and Kingston, Ontario. These sites were chosen because of the large number of interviews to be conducted in each of these locations.

Once the one week of training is complete, there will be one week during which interviewers will carry out interviews in most if not all institutions in the Abbotsford and Kingston areas. This will facilitate monitoring these early interviews and enable us to provide clear feedback to interviewers. If any of these individuals experiences difficulty dealing with inmates, their employment will be ended at this point.

Following the two weeks of training and monitoring, interviewers will travel back to the locations from which they were recruited and will begin conducting interviews in the institutions to which they have been assigned. Continuous monitoring of their progress and/or any difficulties encountered will carry on throughout the duration of the study.

Each interview will take between 1 1/2 and 3 hours to complete, depending on the inmate's responses. Interviews will be conducted during the normal working day at the institution. Many of our interviewers are interested in also conducting interviews during the evening hours. This would facilitate completion of the study. However, evening interviewing will be entirely at the discretion of the institution. We are now working out the scheduling of interviews at specific institutions. This timing will be tentative since it is impossible to know, in advance, how many interviews will be completed per day. The schedule will be based on an assumption that most interviews will be 1 1/2 hours in length. If this assumption is proven to be inappropriate, then scheduling will be modified.

Your cooperation and assistance with this important project is vital to its success. We will make every attempt to minimize the impact of carrying out this study on you and the operation of the institutions involved.

We would appreciate it if wardens would pass on the enclosed letter to the inmate committee. We cannot carry out an effective study without their full cooperation.

We will be contacting wardens in the near future to clarify any questions that they may have and to obtain the name of the liaison person for each institution. In the meantime, if you have any questions please do not hesitate to call me or Dr. Tina Beranbaum at Price Waterhouse at 617-552-3200.

Thank you for your cooperation. We look forward to a successful and timely study whose results will prove useful for resource and program planning purposes.

for Inmate Committees

Study of the Incidence of Psychiatric and Behavioural
Disorders Among Federally Incarcerated Offenders.

CSC staff and inmates have been expressing a need for more psychological and psychiatric services as well as additional programs to deal with specific problems that inmates face. In response to this, CSC is carrying out a study of the incidence of psychiatric and behavioural disorders among federally incarcerated offenders. There will be over 2,600 interviews conducted with randomly chosen inmates who are incarcerated in every province across Canada. Price Waterhouse, an independent consulting firm, has been hired to carry out these interviews. The study begins in early September and interviews will take place for about seven weeks.

The results of the study will be used to assist in the future planning of mental services and programs. The study will give CSC a sense of the level of inmate distress, the most common types of problems encountered, as well as where additional services and programs are needed. As you can see, this study is very important for the welfare of all inmates.

The interviews will be 1 1/2 to 3 hours long, depending on how an inmate answers the questions, and will take place in a private setting. Some of the questions we will be asking are very personal. However, no one at CSC will know how you answer these questions. They will only be given information in summary form. For example, we will tell them that a certain percentage of inmates have disorders related to alcohol and/or drug abuse. If you have any questions, a CSC staff person is being assigned as the liaison between your institution and the people carrying out the interviews. Feel free to contact him/her if you want to clarify anything to do with this study.

APPENDIX G

INTRODUCTION

STUDY OF THE INCIDENCE OF PSYCHIATRIC AND BEHAVIOURAL DISORDERS AMONG FEDERALLY INCARCERATED OFFENDERS

CSC staff and inmates have been expressing a need for more psychological and psychiatric services as well as additional programs to deal with specific problems that inmates face. In response to this, CSC is carrying out a study of the incidence of psychiatric and behavioural disorders among federally incarcerated offenders. There will be over 2,600 interviews conducted with randomly chosen inmates who are incarcerated in institutions across Canada. You are one of the inmates selected to participate. I represent Price Waterhouse, an independent consulting firm, which has been hired to carry out these interviews.

The results of the study will be used to assist in the future planning of related services and programs. The study will give CSC a sense of the level of inmate distress, the most common types of problems encountered, as well as where additional services and programs are needed. As you can see, this study is very important for the welfare of all inmates.

Future decisions regarding increasing the services and programs provided to you may depend on the findings of this study. Your interview will take approximately 1 1/2 hours to complete. Some of the questions will be very personal but it is necessary that I ask them in order to get complete information. Your answers will, in no way affect your present situation or affect future decisions about you. I want to emphasize that no one at CSC will know how you answered these questions. They will only be given information in summary form. For example, we will tell them that a certain percentage of inmates have disorders related to alcohol and/or drug abuse. Participation in this study is completely voluntary. It is very important that you participate in this study. I will not be able to replace you.

Before we begin, I will give you a consent form which I would like you to read and sign. As I have said, your cooperation is very important. Please be as honest as possible.

Participation in this study is completely voluntary. It is very important that all of the inmates selected to participate allow themselves to be interviewed. Please give us your total cooperation and be as honest as possible. Future decisions regarding increasing the services and programs provided to you may depend on the findings of this study.

INMATE INTERVIEW CONSENT FORM
RESEARCH PROJECT
PREVALENCE OF MENTAL DISORDER IN THE CORRECTIONAL SERVICE OF CANADA

PURPOSE OF THE STUDY

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The purpose of this study is to identify the kinds of mental health problems among inmates. Interviews are being conducted with a sample of inmates across the country. The results will be used to assist the CSC in determining treatment/program requirements.

TIME REQUIRED

Your participation will require an interview lasting approximately 1½ hours.

CONFIDENTIALITY AND RIGHT OF REFUSAL

Your participation is voluntary. You have the right to refuse to participate or you may end your participation at any time. Your cooperation within the project, or the responses you give to the interview questions will not affect the conditions or length of your sentence in any way. Your responses are being used for research purposes only. Your responses to the interview questions will not be shared in any way with institution staff or with the CSC for the purpose of evaluation, other than research purposes.

CONSENT

This is to certify that I, _____, FPS _____ hereby agree to participate as a volunteer in this study.

- The purpose of this study has been explained to me and I understood the explanation. I have been given an opportunity to ask questions about the study and am satisfied with the responses provided.
- I understand that I am free to refuse to participate and may refuse to answer any of the questions or end the interview at any time.
- I understand that my participation is completely voluntary, and the answers provided to the interview questions will be confidential and used only for research purposes.

I grant permission to the investigator to:

Access my institutional records YES _____ NO _____

Use the answers provided to the interview questions for research purposes only YES _____ NO _____

I wish the consent form to be part of my files which I have the right to consult and for which I may ask for amendments or corrections as per Article 12 of the Privacy Act.

YES _____ NO _____

Signature of the Participant

Date

I, the undersigned, have defined and fully explained the above to the participant in detail, and to the best of my knowledge it was understood.

Signature of the Investigator

Date

APPENDIX H

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DSMIII DIAGNOSTIC PROGRAM FOR DIS VERSION III-A

DSMIII ANTISOCIAL PERSONALITY DISORDER - DSMASP

DSMCON# The # is replaced by a number from 1 to 12 to identify a specific group of behaviour problems occurring before age 15. If one or more behaviours in the group is positive, DSMCON# is coded 1.

- DSMCON1 - Truant
- DSMCON2 - Expelled, suspended
- DSMCON3 - Arrest
- DSMCON4 - Run away from home
- DSMCON5 - Lying
- DSMCON6 - Sex before age 15
- DSMCON7 - Drunk or drug use before age 15
- DSMCON8 - Stealing
- DSMCON9 - Vandalism
- DSMCON10 - Poor grades
- DSMCON11 - Trouble at school
- DSMCON12 - Starts fights

DSASPGP# The # is replaced by a number from 1 to 9 to identify a specific group of behaviour problems occurring after age 18. DSASPGP# is a count variable whose value is the number of positive symptoms within the specified group.

- DSASPGP1 - Job troubles
- DSASPGP2 - Negligent toward children
- DSASPGP3 - Non-traffic arrest, prostitution, pimping, drug sales
- DSASPGP4 - Marital/relationship problems
- DSASPGP5 - Violence
- DSASPGP6 - Trouble with debts
- DSASPGP7 - Vagrancy
- DSASPGP8 - Lying
- DSASPGP9 - Traffic offenses

DSMASP The DSMIII DIAGNOSIS OF ANTISOCIAL PERSONALITY:

The criteria are age 18 or older, onset of three or more positive conduct disorder groups before age 15, four or more positive adult behaviour problem groups, some adult behaviour problems between ages 18 and 25, and not manic or schizophrenic. This is coded 3. The DSMIII requirement that there be no period of 5 years since age 15 without symptoms is not available.

Definite diagnosis except for concurrent diagnoses of mania or schizophrenia (i.e. without exclusion criteria) is coded 5. Mental retardation is not available as an exclusion criterion.

Although DSMIII has no "possible" level, such a category has been created by reducing criteria to two positive conduct disorder groups and three positive adult behaviour problem groups. This is coded 2 when exclusion criteria are met and 4 when they are not.

1=negative

2=possibly antisocial, exclusion criteria met

3=antisocial personality

4=possibly antisocial, exclusion criteria not met

5=antisocial personality except exclusion criteria not met

DSMALC THE DSMIII DIAGNOSIS OF ALCOHOL ABUSE AND DEPENDENCE

1=absent, neither dependence nor abuse

2=alcohol abuse but without dependence

3=alcohol dependence but without abuse

4=alcohol abuse and dependence are both present

DMDRGSUM THE DSMIII DIAGNOSIS OF DRUG ABUSE AND DEPENDENCE

1=no abuse or dependence

2=abuse, severe

3=dependence, severe

4=abuse, not severe

5=dependence, not severe

6=abuse and dependence, severe

7=abuse and dependence, not severe

APPENDIX I

Table I - 1

Frequency of conduct disorder groups for the eight disorder configurations

	TRUANCY		EXPULSED/ SUSPENDED		ARREST		RUNAWAY		LYING		SEX	
	N	%	N	%	N	%	N	%	N	%	N	%
ASPD/N (n=23)	8	34.8	11	47.8	13	56.5	2	8.7	9	39.1	18	78.3
ASPD/D (n=22)	13	59.1	12	54.5	16	72.7	10	45.5	12	54.5	12	54.5
ASPD/A (n=53)	37	69.8	19	35.8	25	47.2	21	39.6	21	39.6	37	69.8
ASPD/DA (n=116)	71	61.2	64	55.2	71	61.2	48	41.4	53	45.7	83	71.6
NASPD/N (n=52)	4	7.7	1	1.9	1	1.9	0	0.0	3	5.8	6	11.5
NASPD/D (n= 6)	0	0.0	1	16.7	1	16.7	0	0.0	0	0.0	3	50.0
NASPD/A (n=35)	5	14.3	3	8.6	0	0.0	0	0.0	4	11.4	8	22.9
NASPD/DA (n=20)	4	20.0	4	20.0	3	15.0	2	10.0	5	25.0	7	35.0

Table I - 2

Frequency of conduct disorder groups for the eight disorder configurations

	DRUNK/ DRUG USE		STEALING		VANDALISM		POOR GRADES		TROUBLE AT SCHOOL		STARTS FIGHTS	
	N	%	N	%	N	%	N	%	N	%	N	%
ASPD/N (n=23)	1	4.3	17	73.9	8	34.8	6	26.1	12	52.2	6	26.1
ASPD/D (n=22)	5	22.7	17	77.3	5	22.7	6	27.3	16	72.7	8	36.4
ASPD/A (n=53)	25	47.2	33	62.3	17	32.1	16	30.2	34	64.2	23	43.4
ASPD/DA (n=116)	63	54.3	98	84.5	53	45.7	32	27.6	91	78.4	64	55.2
NASPD/N (n=52)	4	7.7	7	13.5	1	1.9	4	7.7	4	7.7	3	5.8
NASPD/D (n= 6)	0	0.0	3	50.0	0	0.0	0	0.0	1	16.7	2	33.3
NASPD/A (n=35)	6	17.1	12	34.3	1	2.9	5	14.3	3	8.6	4	11.4
NASPD/DA (n=20)	3	15.0	6	30.0	2	10.0	2	10.0	7	35.0	2	10.0

Table I - 3

Frequency of adult behaviour problem groups for the eight disorder configurations

	JOB TROUBLES		NEGLIGENT TOWARDS CHILDREN		NON TRAFFIC ARREST		MARITAL PROBLEMS		VIOLENCE		TROUBLE WITH DEBTS		VAGRANCY		LYING		TRAFFIC	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
ASPD/N (n=23)	19	82.6	0	0.0	23	100	18	78.3	16	69.6	0	0.0	15	65.2	12	52.2	12	52.2
ASPD/D (n=22)	21	95.4	0	0.0	22	100	15	68.2	17	77.3	1	4.5	7	31.8	18	81.8	7	31.8
ASPD/A (n=53)	47	88.7	2	3.8	53	100	43	81.1	39	73.6	2	3.8	25	47.2	36	67.9	28	52.8
ASPD/DA (n=116)	104	89.7	7	6.0	116	100	97	83.6	94	81.0	2	1.7	77	66.4	79	68.0	68	58.6
NASPD/N (n=52)	25	48.1	0	0.0	52	100	17	32.7	12	23.1	2	3.8	7	13.5	9	17.3	13	25.0
NASPD/D (n= 6)	4	66.7	0	0.0	6	100	4	66.7	3	50.0	0	0.0	1	16.7	1	16.7	1	16.7
NASPD/A (n=35)	22	62.9	1	2.9	35	100	21	60.0	15	42.9	0	0.0	3	8.6	7	20.0	25	71.4
NASPD/DA (n=20)	16	80.0	1	5.0	20	100	11	55.0	11	55.0	0	0.0	11	55.0	10	50.0	10	50.0

3

of/de

3

PM-1 3 1/2" x 4" PHOTOGRAPHIC MICROCOPY TARGET
NBS 1010a ANSI/ISO #2 EQUIVALENT

PRECISIONSM RESOLUTION TARGETS

PIONEERS IN METHYLENE BLUE TESTING SINCE 1974

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15000 COUNTY ROAD 5 BLAIRVILLE MO 63007 USA
TEL 816 432 7867 FAX 816 432 7867 TOLL 800 828 0488

APPENDIX J

Table J - 1

Frequency of prior conviction types for ASPD/NASPD/Substance Use Disorder Configurations

CONVICTION TYPE	ASPD/N (n=23)	ASPD/A (n=53)	ASPD/D (n=22)	ASPD/DA (n=116)	NASPD/N (n=52)	NASPD/A (n=35)	NASPD/D (n=6)	NASPD/DA (n=20)	TOTAL
Homicide	1	0	0	0	1	0	0	2	4
Attempted Murder	0	0	0	1	0	0	0	0	1
Violent Sexual	2	3	0	5	1	0	0	0	11
Violent	4	3	3	10	4	1	0	0	25
Sexual	19	4	3	2	40	4	0	4	76
Arson	0	1	2	1	0	0	0	2	6
Robbery	17	21	8	90	13	2	0	19	170
Assault	25	34	12	120	14	14	1	12	232
Drug	6	19	16	101	2	0	3	30	177
Alcohol	1	2	0	12	0	6	0	2	23
Property 1	297	438	281	917	74	106	19	105	2237
Property 2	86	158	40	108	81	5	1	162	641
Traffic	8	25	16	57	8	12	0	9	135
Escape	11	23	5	55	4	5	1	7	111
Weapon	1	29	8	60	4	14	1	20	137
Public Morals	50	133	62	303	23	42	12	51	676
Other	8	19	0	10	9	1	0	3	50
TOTAL CONVICTIONS	536	912	456	1852	278	212	38	428	4712

NOTE: Property 1 = Break Enter, Possession of Stolen Property, Theft; Property 2 = Fraud Related.

Table J - 2
Frequency of current conviction types for ASPD/NASPD/Substance Use Disorder Configurations

CONVICTION TYPE	ASPD/N (n=23)	ASPD/A (n=53)	ASPD/D (n=22)	ASPD/DA (n=116)	NASPD/N (n=52)	NASPD/A (n=35)	NASPD/D (n=6)	NASPD/DA (n=20)	TOTAL
Homicide	1	11	2	19	18	15	2	3	71
Attempted Murder	1	1	0	4	3	2	0	1	12
Violent Sexual	1	5	0	2	5	1	1	0	15
Violent	2	0	0	11	8	1	0	0	22
Sexual	11	9	2	15	17	14	1	1	70
Arson	0	0	0	1	21	1	0	0	23
Robbery	38	43	26	137	22	5	1	24	298
Assault	9	9	5	41	4	6	1	4	79
Drug	4	11	3	46	27	2	2	6	101
Alcohol	0	4	0	1	0	1	0	1	7
Property 1	62	70	85	203	6	9	12	18	465
Property 2	24	45	20	88	25	0	0	40	242
Traffic	0	2	3	15	2	5	0	1	28
Escape	3	6	6	13	1	3	0	0	32
Weapon	16	20	5	49	8	4	1	5	108
Public Morale	1	14	9	68	11	5	5	10	123
Other	2	1	2	13	3	2	0	2	25
TOTAL CONVICTIONS	175	251	168	728	181	78	28	116	1719

NOTE. Property 1 = Break Enter, Possession of Stolen Property, Theft; Property 2 = Fraud Related.

APPENDIX K

Criminal History Model (N=327)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE	LAMBDA/SE
First Order Effects:			
Personality Type	31.712 ***	NASPD ASPD -0.083 0.083 YES NO	NASPD ASPD -0.667 0.667 YES NO
Prior Violent Conviction	11.446 ***	-0.127 0.127 YES NO	-1.016 1.016 YES NO
Prior Incarceration	101.14 ***	0.752 -0.752	6.004 -6.004
Substance Use	78.483 ***	NONE -0.022 ALC 0.613 DRG -0.779 ALC+DRG 0.188	NONE -0.095 ALC 3.896 DRG -3.072 ALC+DRG -0.729
Second Order Effects:			
Personality Type by Prior Incarceration	29.056 ***	NASPD -0.501 0.501 ASPD 0.501 -0.501 YES YES NO NO	-4.006 4.006 4.006 -4.006 YES NO
Prior Violent Conviction by Prior Incarceration	68.229 ***	YES 0.521 -0.521 NO -0.521 0.521	4.163 -4.163 -4.163 4.163

* p < .05

*** p < .001

Criminal History Model (Continued) (N=327)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE	LAMBDA / SE			
Second Order Effects:						
Personality Type by Substance Use	39.992 ***	NONE	NASPD ASPD			
		ALC	NONE			
		DRG	ALC			
		ALC+DRG	DRG			
		ALC+DRG	ALC+DRG			
		NASPD ASPD	NASPD ASPD			
		0.767 -0.767	3.320 -3.320			
		-0.069 0.069	-0.441 0.441			
		-0.231 0.231	-0.912 0.912			
		-0.467 0.467	-1.967 1.967			
Prior Incarceration by Substance Use	8.048 *	NONE	YES NO			
		ALC	NONE			
		DRG	ALC			
		ALC+DRG	DRG			
		ALC+DRG	ALC+DRG			
		YES NO	YES NO			
		0.045 -0.045	0.195 -0.195			
		-0.417 0.417	-2.650 2.650			
		-0.034 0.034	-0.137 0.137			
		0.406 -0.406	2.592 -2.592			
Third Order Effect:						
Substance Use by Personality Type by Prior Incarceration	7.932 *	NONE	Prior Incarceration			
		ALC				
		DRG				
		ALC+DRG				
		YES NO	YES NO			
		NASPD ASPD NASPD ASPD	NASPD ASPD NASPD ASPD			
		-0.251 0.251 0.251 -0.251	-1.089 1.089 -1.089 1.089			
0.138 -0.138 -0.138 0.138	0.881 -0.881 -0.881 0.881					
-0.024 0.024 0.024 -0.024	-0.098 0.098 -0.098 0.098					
0.137 -0.137 -0.137 0.137	0.306 -0.306 -0.306 0.306					

* p < .05

*** p < .001

Figure 1

**Effect of substance use
disorder and personality
disorder on prior incarceration**

APPENDIX L

Current Criminal Background Model (N=327)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE	LAMBDA/SE
First Order Effects:			
Personality Type	31.712 ***	NASPD ASPD -0.326 0.326	NASPD ASPD -3.773 3.773
Current Violent Conviction	106.057 ***	YES NO 0.548 -0.548	YES NO 6.330 -6.330
Substance Use	78.483 ***	NONE ALC DRG ALC+DRG 0.165 0.269 -0.867 0.433	NONE ALC DRG ALC+DRG 1.269 2.056 -4.346 1.021
Second Order Effects:			
Substance Use by Personality Type	67.940 ***	NONE ALC DRG ALC+DRG 0.724 0.019 -0.349 -0.394	NASPD ASPD 5.547 -5.547 0.152 -0.152 -1.748 1.748 -3.951 3.951

*** p < .001

APPENDIX M

Follow-Up Model (N=160)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE	LAMBDA/SE
First Order Effects:			
Personality Type	12.257 ***	NASPD ASPD -0.276 0.276	NASPD ASPD -2.305 2.305
Revocation/Conviction	51.193 ***	YES NO -0.528 0.528	YES NO -4.406 4.406
Substance Use	31.229 ***	NONE ALC DRG ALC+DRG -0.305 0.432 -0.609 0.482	NONE ALC DRG ALC+DRG -1.317 2.580 -2.538 1.275
Second Order Effects:			
Substance Use by Personality Type	37.416 ***	NONE ALC DRG ALC+DRG 0.735 0.097 -0.357 -0.475	NASPD ASPD 3.172 -3.172 0.583 -0.583 -1.487 1.487 -2.268 2.268

*** p < .001

APPENDIX N

Summary Model 1 (N=160)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE		LAMBDA/SE
First Order Effects:				
Substance Use	58.944 ***	YES 0.739 ASPD	NO -0.739 NASPD	YES 4.501 ASPD NO -4.501 NASPD
Personality Type	12.257 ***	0.053 YES	-0.053 NO	0.323 YES NO -0.323
Prior Incarceration	48.757 ***	0.538 YES	-0.538 NO	3.276 YES NO -3.276
Revocation/Conviction	51.195 ***	-0.675 YES	0.675 NO	-4.112 YES NO 4.112
Second Order Effects:				
Substance Use by Personality Type	31.853 ***	YES 0.432 ASPD	NO -0.432 NASPD	2.631 YES NO -2.631
Substance Use by Revocation/Conviction	5.293 *	YES 0.252	NO -0.252	1.539 YES NO -1.539

* p < .05

*** p < .001

APPENDIX O

Summary Model 2 (N=160)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE	LAMBDA/SE
First Order Effects:			
Substance Use	58.945 ***	YES 0.805 NO -0.805	YES 5.000 NO -5.000
Personality Type	12.257 ***	ASPD 0.039 NASPD -0.039	ASPD 0.244 NASPD -0.244
Revocation/Conviction	51.195 ***	YES -0.706 NO 0.706	YES -4.386 NO 4.386
Second Order Effects:			
Substance Use by Personality Type	31.922 ***	YES 0.431 NO -0.431	ASPD 2.678 NASPD -2.678
		NO -0.431 0.431	-2.678 2.678

Note. The Prior Violent Conviction first order effect was not statistically significant. This variable was not included in any significant higher order effects and is therefore absent from this final model.

*** p < .001

APPENDIX P

Summary Model 3 (N=160)

EFFECT	PARTIAL ASSOCIATION CHI-SQUARE	LOGLINEAR PARAMETER ESTIMATE		LAMBDA/SE	
First Order Effects:					
Substance Use	58.944 ***	YES 0.745	NO -0.745	YES 4.978	NO -4.978
Personality Type	12.257 ***	ASPD 0.019	NASPD -0.019	ASPD 0.131	NASPD -0.131
Current Violent Conviction	39.696 ***	YES 0.337	NO -0.337	YES 2.253	NO -2.253
Revocation/Conviction	51.195 ***	YES -0.608	NO 0.608	YES -4.062	NO 4.062
Second Order Effects:					
Substance Use by Personality Type	32.350 ***	YES 0.438	NO -0.438	ASPD 2.929	NASPD -2.929
		NO -0.438	YES 0.438	-2.929	2.929
Substance Use by Revocation/Conviction	5.542 **	YES 0.212	NO -0.212	YES 1.421	NO -1.421
		NO -0.212	YES 0.212	-1.421	1.421

*** p < .001

** p < .01

END

21-1 21-92

FIN