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PSYCHOPATHOLOGY PREDICTS FREQUENCY AND TYPE OF DRUG ABUSE AMONG JAIL INMATES

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Abstract

Although psychopathologies of various forms are prevalent among drug abusing populations, they are nonspecific for type of drug abused or nature of that abuse. In particular, the incidence of depression, anxiety, and antisocial personality disorder is high among substance abusers relative to non-drug abusers. It is well known that offender populations have a high rate of substance abuse and some studies suggest that the incidence of psychopathology may be even greater than in other drug using groups. In order to identify specific types of psychopathology as they relate to drug preferences and frequency of use among drug-using offenders, detainees and inmates at the Baltimore City Jail were examined. During extensive interviews, drug-abusing offenders provided information pertaining to their backgrounds, childhood histories, biological relatives, present behaviors, criminal and drug histories. Additionally, several psychological inventories were administered to evaluate the presence of depression, anxiety, psychopathy, and impulsivity. Results indicate that frequency of specific drug use and drug of choice were significantly associated with particular measures of psychopathology. Several noteworthy findings will be discussed along with the limitations of this study.

INTRODUCTION

Numerous studies have established a strong relationship between drug use and crime. In 1989, a report on drugs and jail inmates showed that 75% of inmates were drug users, 26% were charged with drug offenses and 13% of convicted inmates indicated the crime was committed to obtain money to purchase drugs (Harlow, 1991). It is unclear whether their crimes were a result of direct drug effects or a function of the drugs' illegality. Nevertheless, a preponderance of recent studies suggest that drug abuse may be secondary to an antisocial lifestyle, as delinquent acts and conduct disorders frequently occur prior to the onset of drug use (Holmberg, 1985; Johnson, Wish and Huizinga, 1983; Johnston, O'Malley and Bachman, 1986; Kandel, 1985; Santo, Hooper, Friedman and Conner, 1980). These findings suggest that certain background or psychological conditions increase the likelihood of drug abuse. Furthermore, they indicate that drug abuse is merely a symptom of an underlying problem. Given that studies have found alcohol and drug abuse to be negatively related to success of rehabilitation and that substance abusers with antisocial personality disorder (ASP), depression and other psychiatric disorders are even more intractible (McLellan et al., 1982; Pottenger et al., 1978; Rounsaville et al., 1987; Woody et al., 1984), discriminations between drug abusers may facilitate therapeutic efforts.

In an attempt to elucidate classifications of drug abusers, researchers have sought to identify patterns of behavior, psychological traits and background conditions that predict drug use. Although many studies provide evidence for pervasive

psychopathology among hard core drug users, no study to date has isolated factors that are associated with specific types and patterns of drug abuse. In other words, we are not yet able to consistently predict the nature and extent of drug abuse in any given population.

The comorbidity of psychopathology and drug abuse is exemplified by the relationship between alcoholism and ASP, depression, and anxiety. Schubert et al. (1988) performed a meta analysis of 40 studies that assessed the association between alcohol use, drug abuse, and ASP. Their analyses revealed a significant association between the three diagnoses such that if a person is identified as belonging to one of the groups, they are significantly more likely to have the other two diagnoses. Hesselbrock (1985) examined psychopathology in 321 alcoholics hospitalized for treatment. In this group, the most prevalent diagnosis for men was ASP, followed by substance abuse and depression. For women, depression was most prevalent. Several related reports suggest that anxiety disorders are also disproportionately represented among heavy drinkers and alcoholics (Regier et al., 1990; Schuckit et al., 1988), although discrepant studies exist (Mehrabian and O'Reilly; 1988).

In a review of the literature on marijuana use and psychopathology, Millman and Sbriglio (1986) identified associations between long term marijuana use and affective disorders including depression and schizophrenia. The incidence of anxiety is also increased among marijuana users and panic attacks are frequently induced by marijuana in those with anxiety (Szuster et al., 1988; Millman and Sbriglio, 1986). Other studies have shown anger to be related to marijuana use. A study of 497 undergraduates reported

that frequent marijuana use is associated with high scores on an "anger directed outward" scale (Stoner, 1988) Measures of aggressiveness employed in this study showed that heavier marijuana users are more aggressive. Long term use is further related to use of other drugs including alcohol and cocaine.

Cocaine use has primarily been associated with depression (Newcomb and Bentler, 1986; O'Brien et al., 1988; Rounsaville et al., 1991) and in some studies ASP (see e.g., Rounsaville et al., 1991). In a longitudinal study of adolescents which attempted to isolate precursors to cocaine use, depression was identified as the only psychopathologic condition related to eventual heavy use (Newcomb and Bentler, 1986). Social context variables such as peer and adult use were also predictive of later use. Additionally, use of marijuana influenced cocaine use in this sample. Studies in outpatient treatment centers further support the relationship between cocaine use and depression. Unipolar and bipolar affective disorder was prevalent among cocaine users (Nunes et al., 1989) and cocaine abusers had more affective disorders than abusers of other substances (Weiss et al., 1988). The cocaine-induced changes in neurochemical activity believed to be responsible for depression and the relatively efficacious use of antidepressants in the treatment of chronic cocaine users (see Dackis and Gold, 1985; Gawin, 1986; Gawin and Kleber, 1986; Kleber and Gawin, 1986; O'Brien et al., 1988) provides further support for the comorbidity of cocaine use and depression.

The literature on opiate use and psychopathology identifies ASP as the condition with the highest prevalence among opiate users, with rates ranging from 22% to 55% of those classified as having a

disorder (Craig, 1988; Kosten, Rounsaville and Kleber, 1982; Rounsaville et al., 1982; Khantzian and Treece, 1985) Other conditions associated with opiate use include borderline and narcissistic personality.

Limitations of previous studies are found in the extreme variations in populations studied, psychological scales used and definitions of drug use. For the criminal justice practitioner, a larger limitation is that few have investigated the relationship between psychopathology and drug use in a criminal population. Of the few studies that have examined offenders, relationships appear to be consistent. Lewis et al. (1983) evaluated alcoholism, ASP and drug use in a sample of 309 offenders on probation or parole. White men diagnosed as ASP were significantly more likely to be alcoholic and abuse drugs. Black men diagnosed with ASP did not show higher rates of alcoholism. A study by Smith and Newman (1990) confirmed these findings.

Regier (1990) found that approximately 90% of a prison population diagnosed as schizophrenic, bipolar, or ASP also had a cormorbid alcohol or drug addiction. Abram and Teplin (1991) studied a random sample of mail jail inmates and demonstrated that inmates with severe lifetime and current schizophrenia and depression had significantly more alcohol and drug dependence than those without severe disorders. Associations with individuals drugs were not examined.

The purpose of the present study was to explore whether psychological, family and childhood history, and type of psychopathology predict drug of choice and specific drug use frequencies in a jailed offender population. The nature and extent

of specific drug use patterns as they are related to these comorbid conditions may facilitate an understanding of antecedents of drug abuse.

METHODS

Subjects

The subject population included 76 inmates from the Baltimore City Detention Center. Male volunteers, 17 years of age or older (mean = 28; SD $\pm$ .90), were recruited to participate in a study of drug abuse. They were invited to participate whether or not they have used drugs with the intent to compare drug using offenders with non-drug using offenders. Only two subjects reported no previous or present drug use. Initial subject identification was accomplished primarily by an inhouse recruitment presentation during intake procedures or during classification. Remaining inmates were recruited through referrals from staff or other participating subjects. Participation was voluntary and interviews were performed on an anonymous basis in a private room to avoid distractions and staff-influences. Subjects were informed that their participation would not influence their legal status and that they may discontinue their involvement at any time. Each subject signed a consent form and was administered a consent test to ensure that they were literate and understood the purpose and nature of the study. Those who had difficulty responding to the test battery were read each item. Completion of the test battery took about two hours. Due to boredom with testing procedures and inability or unwillingness to complete the tests, there are missing data; thus, sample sizes vary for different analyses.

The Detention Center's population is largely composed of Afro-American individuals charged with property crimes and the illegal use or possession of drugs, although nearly half of those examined in the present study reported a history of violent behavior and have been charged with violent offenses. Time in jail for current charges ranged between one day and 95 days (mean = 52.2; SD ± 4.4). Years of education ranged from 3 to 15 (mean = 11.3; SD ± 0.23). Approximately Sixty-two percent of subjects report selling drugs for a living. Seventeen percent have received psychiatric treatment as an inpatient. (See Table 1 for summary description.)

Test Battery.

A general information inventory was administered initially to inquire about demographic variables, medical status, employment status, family and social relationships, psychological and psychiatric symptoms, and legal status. A history of psychiatric problems was computed by adding "yes" [1] responses together on a number of items reflecting psychiatric symptoms (anxiety, depression, hallucinations, prescriptions for psychological reasons, and suicidal thoughts) and treatment (inpatient and outpatient). Items relating to legal status were included to discern how many times subjects had been arrested in their lifetimes and what formal charges they had received for an exhaustive list of criminal offenses.

A portion of the Addiction Severity Index (ASI)(McLellan, Luborsky, O'Brien, & Woody, 1980) was reworded and restructured to more easily elicit responses with respect to the nature and extent of drug abuse among our subjects. This questionnaire provides a detailed history of drug use, including age of first use and

frequency of use for alcohol, marijuana, hallucinogens, tranquilizers, barbiturates, amphetamines, cocaine, opiates, inhalants, nicotine, and PCP (phencyclidine). A final question was added to identify subjects' drug of choice.

The third inventory administered included items regarding childhood history (before the age of 12) of school achievement and various behaviors reflective of conduct disorder, hyperactivity, learning disability, attention deficit, impulsivity, and shyness (items = 27). The following 47 items inquired about behaviors, criminality, and drug use after the age of 12. In addition, items were included about family history of drug abuse, criminality and mental illness.

The Welsh Anxiety Scale was derived from the Minnesota Multiphasic Personality Inventory (MMPI)(Graham, 1987) to measure "general maladjustment" as a function of anxiety. The 39 items that comprise this scale were categorized as: thinking and thought processes; negative emotional tone and dysphoria; lack of energy and pessimism; and malignant mentation. High scores on the Welsh are associated with more psychopathology.

The Beck Inventory was designed to measure the behavioral manifestations of depression (Beck et al., 1961). The 21 items of this Inventory approximate clinical judgments of intensity of depression, although it does not attempt to distinguish between etiological types of depression.

The Buss-Durkee Hostility Inventory (BD) is a self-report measure of several subclasses of hostility: assault, indirect hostility, irritability, verbal hostility, suspicion, negativism, and resentment

(Buss & Durkee, 1957). The BD is widely used to discriminate aggressive offenders from non-aggressive offenders and is extensively used in research as a classification instrument (Biaggio, Supplee, & Curtis, 1981). As certain types of drug use are associated with aggressive behavior, this Inventory was administered and a "total" score was calculated by adding all scale scores.

The Eysenck Personality Questionnaire-Revised (EPQ-R; Eysenck & Eysenck, 1975; Eysenck et al., 1985) is a 100 item psychometric test that includes four scales: Extraversion, Psychoticism, Neuroticism, and Lie. The Extraversion scale is thought to be related to psychopathy.

The Barratt scale includes 44 true-false questions designed to measure impulsivity, with high scores reflecting high impulsivity.

The Socialization scale (So) of the California Psychological Inventory (CPI; Gough, 1969) was used to measure a range of behavior from asocial to social (see Megargee, 1972). Its 54 items have been used in previous investigations as a sole measure of psychopathy or as a supplement to other procedures (e.g., Hare & Schalling, 1978). Note that low scores on the So scale are in the direction of low socialization and high psychopathy.

A composite measure of psychopathy[1] was computed by adding Barratt and BD Assault scores and subtracting the CPI (which is reverse scored).

Statistics

Responses to the ASI regarding frequency of drug use were coded to provide a continuous measure with consistency between responses as

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[1]These traits characterize psychopaths in previous literature.

follows: 0 = None; 1 = not much, rarely, very few times, 2 = 1-2 times a month, occasionally, sometimes; 3 = 1-2 times a week; 4 = 3-4 times a week, frequently, often, many; 5 = daily, 5-7 times a week. Total drug frequency was computed by adding these frequency scores for all listed drugs. For purposes of Chi Square calculations, the categories were collapsed into three groups based on the above scores: None = 0; Medium = 2 + 3; and High = 4 + 5. No subject reported "not much" or "rare" heroin, alcohol, cocaine, or marijuana use so category "1" was eliminated.

Several "scales" were formed using the Background Questionnaire to provide approximate measures of various behaviors. The following scales were created: conduct disorder, learning disabled, hyperactivity, and family history (see Table 2 for specific items).

A composite measure of violent crime was computed by adding the number of times subjects reported being arrested or charged with the following offenses: robbery, assault and battery, murder, rape, possession of a weapon, and arson. The same computation was performed to construct a measure of property crime, using the following offenses: shoplifting, burglary, and forgery.

In order to initially assess relationships among continuous variables and drug frequencies, Pearson product-moment correlations (R) were calculated. Due to the large number of correlations, we performed additional analyses to minimize the risk of per chance findings. Chi Square analyses were included for dichotomous variables (e.g., head injury and engaged in selling drugs) in relation to collapsed drug frequency groups and drug of choice groups (1 = heroin, 2 = cocaine and 3 = marijuana). Two-way analyses of

covariance (BMDP-2v) were used to identify associations between drug frequencies (as continuous dependent variables) with psychological and background variables (as the grouping factors). Psychological and background variables were divided by identifying the means and splitting them into a low and high group. Age was included as a covariate to adjust for its effects. Finally, stepwise regression analyses (BMDP-2r) were performed for continuous variables, using background and psychological as independent variables and each drug's frequencies as the dependent variable in separate analyses. In order to determine the relative predictive value of psychological measures, regression analyses included the Beck, Welsh, EPQ-Extraversion, EPQ-Psychoticism, EPQ-Neuroticism, BD scales, Barratt, and CPI.

RESULTS

Because only a few subjects reported use of hallucinogens, tranquilizers, barbiturates, amphetamines, inhalants or PCP on a regular basis, this study focused on the more prevalent use of alcohol, marijuana, cocaine and heroin. The following sections present results for these four drugs with respect to frequency of use (N = 61) and drug of choice (N = 62) using the following analyses: a) correlations with behavioral and psychological measures (Table 3); b) Chi squares for both collapsed drug frequency measures and for drug of choice (heroin, cocaine and marijuana); c) two-way analyses of covariance using psychological variables divided into high and low groups and drug frequency measures as the dependent variables, and with "drug of choice" as the grouping factor (heroin, cocaine and marijuana); and d) stepwise regression analyses to determine the relative contribution of psychological tests to each drug frequency

separately (Table 4).

Alcohol

The frequency of alcohol consumption was significantly related to the Welsh Anxiety scale ($R = 0.28$; $p < 0.05$), the Barratt measure of impulsivity ($R = 0.33$; $p < 0.01$) and the composite measure of psychopathy ($R = 0.36$; $p < 0.01$). Chi Square analyses indicated that subjects who used alcohol frequently reported a greater incidence of head trauma than those who used alcohol less often ($Chi^2 = 10.8$; $p < 0.005$). Consistent with correlational analyses, ANCOVA results showed that high scores on the Welsh were associated with more frequent alcohol consumption ($F = 4.03$; $df = 1,47$; $p < 0.05$). (High Welsh scores were also related to reports of violent behavior [$F = 5.33$; $df = 1,60$; $p < 0.02$]). High scorers on the Neuroticism scale of the EPQ reported a higher frequency of alcohol use ($F = 5.04$; $df = 1,41$; $p < 0.03$) than low scorers. Stepwise regression analyses show that the Barratt measure of impulsivity best predicted frequency of alcohol use ($R = 0.49$; $p < 0.01$).

Marijuana

Frequency of marijuana use was significantly related to the BD Suspicion scale ($R = 0.32$; $p < 0.01$) and Psychopathy ($R = 0.38$; $p < 0.005$). Similar to alcohol, those who used marijuana frequently reported more head injuries ($Chi^2 = 7.23$; $p < 0.05$) relative to those who used marijuana less often and high scorers on the Neuroticism scale (EPQ) reported a higher frequency of marijuana use ($F = 5.00$; $df = 1,41$; $p < 0.03$) than low scorers. Analyses of covariance using "drug of choice" as the independent variable showed that subjects who reported preferring marijuana have a greater

frequency of alcohol consumption ($F = 3.83$; $df = 2,49$; $p < 0.05$). These subjects also tend to report more suicidal thoughts than the other two groups ($F = 2.92$; $df = 2,49$; $p = 0.06$). Frequency of marijuana use was jointly predicted by the So scale ($R = 0.58$; $p < 0.005$) and the Extraversion scale of the EPQ ($R = 0.41$; $p < 0.02$).

Cocaine

The frequency of cocaine use was significantly associated with property crimes ($R = 0.28$; $p < 0.05$), BD Assault scale scores ($R = 0.29$; $p < 0.05$), BD Irritability scale scores ($R = 0.35$; $p < 0.01$), BD Resentment scale scores ($R = 0.30$; $p < 0.02$), the total BD score ($R = 0.33$; $p < 0.01$), and the CPI ($R = -0.27$; $p < 0.05$). Also, the relationship between cocaine frequency and the composite measure of psychopathy was significant ($R = 0.32$; $p < 0.01$). Results of ANCOVA's were consistent with correlational analyses, showing that those who used cocaine frequently committed a greater number of property offenses ($F = 6.79$; $df = 1,56$; $p < 0.01$) than those using cocaine less often. High scores on the composite psychopathy score (ANCOVA) were also related to a greater frequency of cocaine use ($F = 5.15$; $df = 1,35$; $p < 0.05$). Subjects who prefer cocaine reported being charged with or arrested for property offenses ($F = 3.16$; $df = 2,51$; $p < 0.05$) more often than those who prefer other drugs. The CPI So scale significantly predicted frequency of cocaine use ($R = -0.39$; $p < 0.05$).

Heroin

Heroin frequency was negatively related to history of psychiatric problems ($R = -0.28$; $p < 0.05$) and years of employment ($R = -0.32$; $p < 0.01$) and positively related to the BD Negativism scale ($R = 0.43$;

$p < 0.005$) and family history ($R = 0.24$; $p < 0.05$). Chi Square analysis also showed a trend for those who use heroin frequently as being more likely to engage in selling drugs for a living ($Chi^2 = 9.7$; $p < 0.08$). ANCOVA results revealed that subjects reporting greater heroin use were more likely to report a history of violent behavior ($F = 4.75$; $df = 1,47$; $p < 0.05$). Subjects who chose heroin as their preference had a significantly higher incidence of psychopathology, drug and alcohol use and criminality among family members ($F = 4.05$; $df = 2,54$; $p < 0.02$).

Total Drug Use

The frequency of total drug use was significantly related to BD Irritability scale scores ($R = 0.31$; $p < 0.05$), BD Indirect Hostility ($R = 0.28$; $p < 0.05$), BD total score ($R = 0.3$; $p < 0.01$), and the Neuroticism scale of the EPQ ($R = 0.33$; $p < 0.01$). There was a significant correlation between total drug use and both property crimes ($R = 0.29$; $p < 0.05$) and the composite measure of psychopathy ($R = 0.38$; $p < 0.005$). Consistently, scores on the composite psychopathy score (ANCOVA) were also positively related to the frequency of total drug use ($F = 5.59$; $df = 1,35$; $p < 0.05$). And finally, the CPI So scale significantly predicted frequency of total drug use ($R = .37$; $p < 0.05$).

Psychopathy

Because the measure of psychopathy was specifically related to frequency of drug use, ANCOVA's were performed for other variables that might further characterize subjects with high and low scores on this composite measure. Those with high scores on psychopathy reported significantly more violent crime ($F = 4.72$; $df = 1,42$; $p <$

0.05), were more likely to become angry when using drugs ($F = 6.57$; $df = 1,41$; $p < 0.01$), had more symptoms of conduct disorder during childhood ($F = 6.02$; $df = 1,24$; $p < 0.02$), and had a greater incidence of alcohol related problems early in life ($F = 6.41$; $df = 1,24$; $p < 0.02$).

Drug Sellers

Finally, we attempted to discriminate between subjects who sell drugs for a living and those who do not to determine whether they differed on any background measures. Using ANCOVA's, we found that those who sell drugs had higher BD-Assault scores ($F = 4.93$, $df = 1,46$, $p < 0.03$) and higher BD-Verbal Hostility scores ($F = 8.79$, $df = 1,46$, $p < 0.005$).

The Psychoticism scale (EPQ) and the Beck's measure of depression were unrelated to drug frequencies and drug preferences in our subjects.

DISCUSSION

In this study, we attempted to identify background and psychological variables that would discriminate between specific types of drug users among inner city jail inmates. Results suggest, that to a certain extent, those who prefer or more frequently use certain drugs relative to other drugs do differ on some measures. In particular, subjects with a high frequency of alcohol consumption reported higher levels of anxiety and impulsivity, and had higher scores on measures of psychopathy and neuroticism than those who consumed smaller amounts of alcohol over time. Impulsivity (Barratt), relative to other psychological indices, best predicted

frequency of alcohol consumption. Previous studies have found a relationship between alcohol use and anxiety levels (Hesselbrock et al., 1985; Regier et al., 1990), impulsivity (Cloninger, 1987; Cloninger et al., 1988; Tarter et al., 1988), and especially psychopathy (Cadoret et al., 1987; Lewis et al., 1983; Schulsinger et al., 1986; Smith and Newman, 1990). Impulsivity is generally included in a diagnosis or characterization of psychopathy, thus, their association with alcohol use is not surprising. A similar association between anxiety and neuroticism, however, is somewhat theoretically discrepant because in pure form, psychopaths display a lack of anxiety and emotional response (see Fishbein, 1990 for review). Notwithstanding, there is increasing evidence to indicate that a significant number of alcoholics are attempting to self-mediate anxiety disorders (Hesselbrock et al., 1985; Suzdak and Paul, 1987; MacAndrew, 1983; Regier et al., 1990) and anxiolytics (anxiety-reducing drugs) are being used in animal studies and clinical settings to treat underlying disorders of some alcoholics (Bruno, 1989; Collins and Myers, 1987; Malka, 1988). Consistent with the literature, it is likely that the comorbidity of alcoholism or heavy drinking with both psychopathy and anxiety is prevalent due to the tendency of both groups to self-medicate with ethanol. It should also be noted, however, that self-report measures of psychopathy tend to be highly unreliable, particularly in studies of jail inmates, that diagnoses of psychopathy are notoriously controversial, and that we did not assess alcoholism. High frequency drinkers also had a greater incidence of head injury, although the implications of this finding are unclear.

Subjects who reported high levels of marijuana use were more suspicious (B-D), neurotic (EPQ), psychopathic (composite) and had a higher incidence of head injury. These subjects were also heavier drinkers than subjects who reported less marijuana use. There was a tendency for frequent marijuana users to experience suicidal thoughts. Unlike alcohol, heavy marijuana use was best predicted by low socialization (CPI) and more extraversion (EPQ) relative to other psychological measures. Although the relationship of marijuana use to suspiciousness, neurotic tendencies, and suicidal thoughts was expected (Fowler et al., 1986; Killen et al., 1987; Reynolds and Rob, 1988; Weller and Halikas, 1985), we also expected to find measures of depression and anxiety to be related; neither the Beck nor the Welsh was associated. The finding that psychopathy was highly related to marijuana intake is consistent with studies showing increased anger and aggressiveness among heavy users (Stoner, 1988) and a tendency to use marijuana to suppress anger (Hendin et al., 1987). When EPQ measures were evaluated relative to other psychological measures, extraversion became more highly related and the correlation between marijuana use and neuroticism disappeared. Extraversion and socialization scores have been included in previous studies as measures of psychopathy (Hare, 1985; Hare and Schalling, 1987; Newman et al., 1985; Raine, 1987). Their association with marijuana use may be to some extent a function of the tendency of these marijuana users to also consume alcohol more frequently. Furthermore, marijuana has been considered a "gateway" drug and in this population particularly, it is used in conjunction with other more powerful drugs. The fact that our subjects are polydrug users we speculate that these inmates

began their drug use with marijuana, and now use it as a "default" drug, secondary to other drugs of abuse. Thus, psychological correlates may not be specific to marijuana use in these subjects. The only descriptor that was unique to those who preferred marijuana over other drugs was the presence of suicidal thoughts, possibly a proxy for depression.

The greater the frequency of cocaine use among our subjects the more property crimes and the higher the scores related to psychopathy. The finding that cocaine use was related to assault, irritability, resentment, and total hostility as measured by the Buss-Durkee may be a function of drug effects rather than predisposing conditions. Cocaine is known to increase levels of hostility and irritability, particularly when used in the form of crack (Honer et al., 1987; Jeri et al., 1980; Post, 1975; Siegel, 1982). Low levels of socialization (CPI) best predicted frequency of cocaine use, relative to other measures. Measures of psychopathy have been correlated with cocaine use and drug use in general (see e.g., Regier et al., 1990), however our finding that subjects who report more cocaine use are responsible for more property crimes was unexpected. Given that the pharmacological properties of the drug are associated with aggressiveness and agitation, we expected to find more violent crimes. Perhaps heavier cocaine users are highly involved in property crimes given cocaine's short-term effects and, consequently, the frequent need to purchase and use more cocaine.

Subjects who report using heroin more frequently were less likely to have a history of psychiatric problems compared with those who use heroin less frequently. This was a curious finding. Possibly those

of our subjects who used less heroin are more likely than those who use heroin heavily to manifest symptoms of an underlying disorder. Conversely, heavy heroin users may be masking a disorder. More frequent heroin users reported more negativism (B-D). There was a tendency for heavy heroin users to sell drugs for a living and they reported fewer years of employment. They also reported a greater history of violent behavior. Finally, we found a greater history of family psychopathology among these users. On the surface, this may suggest that heavy heroin use is a familial phenomena and that these users are genetically predisposed. A more indepth examination of these subjects, however, points to the role of modeling and family relationships in an environment where drug use and criminal behavior is pervasive among relatives, friends and neighbors. In other words, this finding may reflect the stability of heroin use in specific cultures that are underprivileged.[2] There were no significant predictors of heroin use in a regression analysis.

Total drug use frequency was positively associated with a number of conditions, including irritability, indirect hostility, neuroticism, and psychopathy, and negatively related to socialization. More serious drug abusers were also responsible for more of the property crimes, a finding consistent with previous reports (Altschuler and Brounstein, 1991). Related to these results are findings of higher scores on the BD Assault and Verbal Hostility scales among those who sell drugs for a living. Similarly, Altschuler and Brounstein (1991) found that adolescents who used and sold drugs were the most likely to commit crimes against persons and property, and at the greatest rate. Those who sell drugs, therefore,

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[2]Heroin use has remained rather stable over the past 30 years in lower socio-economic neighborhoods ( ).

may represent a more serious group of offenders than those who do not.

A number of shortcomings inherent in this type of research are equally present in this study. Items included in the various psychological tests and the manner in which scales were constructed may not be appropriate or sensitive to the lifestyles of these subjects. The way in which items are worded, in some cases, requires a higher level of education and a different cultural mileau for a complete understanding and accurate responses. Also, some of our subjects responded to questions pertaining to drug use in the present tense. Thus, it is possible that some of those subjects who indicated that they have not used a drug may actually have used in quite heavily in the past. In these few cases, their responses may be more of a reflection of their recovery status or their incarceration, rather than their actual use patterns.

Given that this population is somewhat culturally homogeneous, we speculate that social influences on drug use patterns are partially controlled for. As a result, we were able to isolate psychological conditions that may be predisposing to specific types of drug use. For example, we found that property crime seems to be partially a function of drug of choice (in this instance cocaine) while violent crime was more a function of psychopathy. This indicates that violent crime may be committed more often by those who are already predisposed to violence (e.g., psychopaths) and drug use may simply be the trigger. Numerous studies support this contention (see Fishbein, 1991 or Altschuler and Brounstein, 1991 for review). Nevertheless, these subjects are almost exclusively polydrug abusers and it is difficult to identify discriminants for specific drug use

habits.

Finally, drug availability was an issue not addressed in this study. Detainees entering the Baltimore City facility come primarily from the inner city of Baltimore which is drug and crime infested. Exposure to drugs of abuse tends to occur at a very young age and most children have personally observed their use, commonly by family members. Drug availability may be another important predictor of drug abuse patterns in these subjects. Psychological differences may only relate to the degree of drug dependence or slight drug preferences, rather than specific drug patterns. Moreover, it is noteworthy that not all individuals in Baltimore's inner city use drugs and we are not able to make comparisons between those who do and those who do not abuse drugs. Subjects in the present study were both offenders and drug abusers -- a distinct group not necessarily generalizable to nonoffender populations who abuse drugs. We speculate that, in inner city jail inmates, preexisting psychological traits may not be as predictive of subtance abuse or drug preference as are drug availability and deleterious environmental conditions. Such conditions profoundly affect drug taking behaviors and may outweigh or supercede personal characteristics.

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TABLE 1

DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS

RACE

White	AfroAmerican	Other
9	63	4

AGE

Mean (SD)	Range
28.2 (.89)	17-51

DAYS SPENT IN JAIL PRESENTLY

Mean (SD)	Range
52.2 (4.4)	1-95

YEARS OF EDUCATION

Mean (SD)	Range
11.26 (.23)	3-15

YEARS OF EMPLOYMENT

Mean (SD)	Range
4.14 (.47)	0-20

SUPPORTED

By self: N = 40
By others: N = 35

SELL DRUGS FOR A LIVING

No: N = 28
Yes: N = 47

HOSPITALIZATION FOR PSYCHOLOGICAL/PSYCHIATRIC ILLNESS

No: N = 53
Yes: N = 11

OUTPATIENT TREATMENT FOR PSYCHOLOGICAL/PSYCHIATRIC ILLNESS

No: N = 49
Yes: N = 11

TABLE 2
BACKGROUND QUESTIONNAIRE

(Behaviors before the age of 12)

Conduct Disorder

"Got into alot of fights"
"Got angry easily"
"Got into trouble alot"
"Unusually aggressive"
"Fire setting"
"Cruel to animals
"Lying alot"
"Destructive"

Learning Disabled

"Did well in school"
"Learning disabilities"

Hyperactivity

"Teachers or parents think you were overactive"
"Always getting into things"
"Considered impulsive"
"Short attention span"
"Trouble following directions"

Family History

"Relatives with a tendency to get angry, aggressive or violent"
"Relatives with a drinking problem"
"Relatives who use illegal drugs"
"Relatives with a psychiatric problem"
"Relatives who were treated by psychiatrist or psychologist"
"Relatives in trouble with the law for violent offenses"
"Relatives in trouble with the law for property offenses"

TABLE 3

PEARSON PRODUCT MOMENT CORRELATION COEFFICIENTS
FOR DRUG FREQUENCY AND BACKGROUND VARIABLES#

Background Factors	Drug Frequencies Alcohol	Marijuana	Cocaine	Heroin	Total
Welsh	0.28*	0.19	0.13	0.03	0.24
Barratt	0.33**	0.14	0.03	-0.12	0.14
Neuroticism	0.20	0.26	0.12	0.19	0.33**
Socialization	-0.08	-0.20	-0.27*	-0.13	-0.26
BD-Assault	-0.05	0.04	0.29*	0.21	0.25
BD-Indirect	-0.05	0.00	0.26	0.26	0.28*
BD-Irritability	0.14	0.07	0.35**	0.16	0.31*
BD-Resentment	-0.08	0.05	0.30*	0.12	0.17
BD-Negativism	-0.11	-0.15	0.22	0.43***	0.27
BD-Suspicion	-0.04	0.32**	0.08	0.17	0.26
BD-Total Score	-0.02	0.07	0.33*	0.26	0.33**
Family History	-0.22	0.01	-0.19	0.24*	-0.06
Psychiatric Hx	0.16	0.23	0.07	-0.28*	0.11
Psychopathy	0.36**	0.38***	0.27*	-0.08	0.38***
Property Crime	0.08	0.02	0.28*	0.15	0.29*
Years on Job	0.22	-0.17	0.01	-0.32*	-0.10

* = $p < 0.05$
** = $p < 0.01$
*** = $p < 0.005$
#Note: Requirements for significance differ for each correlation due to differences in sample sizes as a result of missing data.

TABLE 4

STEPWISE REGRESSION ANALYSES: SUMMARY TABLES

VARIABLE ENTERED	MULTIPLE R	MULTIPLE RSQ	CHANGE IN RSQ	F TO ENTER	# OF VAR. INCLUDED
ALCOHOL					
BARRATT	0.49	0.24	0.24	9.65	1
MARIJUANA					
EPQ-EXTRAVERSION	0.41	0.16	0.16	5.51	1
CPI-SOCIALIZATION	0.58	0.33	0.17	6.81	
COCAINE					
CPI	0.39	0.15	0.15	5.31	1
HEROIN - N/A					