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Untreated IV drug users: Behavioral & personality differences among those at risk for AIDS

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Untreated IV Drug Users: Behavioral & Personality Differences Among Those at Risk For AIDS

by

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Abstract

UNTREATED IV DRUG USERS: BEHAVIORAL DIFFERENCES AMONG THOSE AT RISK FOR AIDS & CORRELATIONS WITH SEVERAL DIMENSIONS OF PERSONALITY FUNCTIONING

by

Andrew M. Grunebaum

Adviser: Professor Steven Tuber

The present study investigated the role of personality functioning in HIV risk-taking behaviors among a community sample of intravenous drug users (IVDUs). Differences in how cautiously or carelessly an IVDU used their needles, either protecting themselves or others from HIV exposure or not, were expected to be associated with differences on several personality measures.

In the context of a National AIDS Demonstration Research Project, 99 IVDUs were assessed on baseline measures of drug use, sexual practices, health and substance abuse treatment experiences. Subjects were then assessed on the following measures of personality: the Zuckerman Sensation Seeking Scale; the Blatt et al., Depressive Experiences Questionnaire, (DEQ); the Loevinger Sentence Completion Test; the Millon Clinical Multiaxial Inventory - II, MCMI-II; and the Westen Object Relations & Social Cognition Scales for the Thematic Apperception Test. Using a needle-risk index (Myers et al., 1989), subjects were

classified into three groups according to self-reported needle-use behaviors on the initial interview: Low risk, N=40; Intermediate risk, N=22; High risk, N=37.

Group differences emerged on three of the personality measures (i.e. the TAT scales, the DEQ and the MCMI-II) and on sex risk, drug use, and health outcome variables. IVDUs classified as low risk did not share needles, were low on the DEQ dependency factor, were relatively low on the MCMI-II scale for antisocial personality disorder but within the pathological range, viewed other people as either hostile or disappointing, had relatively less complex and differentiated object representations and showed no evidence of anxiety or depression. Intermediate risk takers shared needles with only one person and revealed the greatest array of psychological disorders: more severely antisocial than the low risk group, met criteria for borderline personality disorder, fell in the pathological range of the anxiety and dysthymia scales, scored high on the DEQ dependency factor, and demonstrated a vulnerability to major depression. In addition, they revealed a more complex capacity to represent self and others and perceived relationships to be mixed, with both positive and negative aspects. High risk takers shared needles with two or more other people, scored low on the DEQ dependency factor, revealed a capacity to represent self and others in a more complex and differentiated

fashion, viewed others as relatively hostile or disappointing, were also more severely antisocial than the low risk group, met criteria for borderline personality disorder and only showed a vulnerability to dysthymia.

Low risk takers appeared to function at a neurotic level with antisocial features and employed a counterdependent stance which appeared to help maintain adequate control over HIV risk-taking behaviors. Intermediate risk takers met the criteria for antisocial/borderline disorders with a dependent orientation, were found to experience the greatest conflict over risk-taking behaviors, manifesting anxiety and dysthymia yet, were able to limit risk-taking by the formation of a strong interpersonal attachment with another person. High risk takers also met the criteria for antisocial/borderline disorders but instead exhibited a counterdependent orientation. Severe antisocial/borderline personality disorder when combined with a counterdependent stance, precludes the formation of mutual relationships which were seen to circumscribe HIV risk-taking for the intermediate risk group. The greatest liability for this community sample of IVDUs was the inability to establish trust, tolerate feelings of dependency and establish genuine interpersonal relationships which in turn may serve a relatively protective function with respect to HIV needle-use risks.

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This research was conducted in the context of an ongoing research effort to locate, educate and provide services to needle-using drug users and their sexual partners at risk for AIDS. Counselors interviewed and referred clients to me who were appropriate for this study. Thank you all: Diane, Chris, Sue, Iris, Delores, Ruth, Ron and Ron. I would also like to thank the principal investigator of the AIDS Grant, Bruce Rounsaville, M.D. for his invaluable support.

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Introduction

In 1982, several years after the appearance of AIDS in the United States, the Centers for Disease Control established the first AIDS case definition (ie. diagnostic criteria) and began formal surveillance of the disease. During that same year, groups of concerned homosexual men commenced education efforts within the gay community to promote safe sex and reduce exposure to the virus. These and subsequent efforts stand as an unprecedented model of self-organization and rapid dissemination of vital health information and recommended prevention practices.

Within the next year, 1982-1983, the link between AIDS and IV drug use was established. As a group, however, IV drug users (IVDUs) have lacked the personal, social and economic resources to respond to their susceptibility to AIDS in the manner exhibited by a majority of the gay community (see, for example, Friedman & Des Jarlais, 1987). Consequently, the responsibility for behavioral change has been more acutely a personal or individual outcome, the result of a complex transaction between environmental and personal factors. A number of crucial determinants of risk reduction have been identified in the literature. These include factors such as possessing the means for risk reduction, social pressure and the availability of support, as well as the psychopharmacologic effects of drug addiction

and withdrawal, beliefs about the efficacy of change and personality variables.

Despite substantial research into both environmental and personal factors contributing to or impeding behavior change, there has been a surprising neglect of the role personality may play in the adoption of health-related, disease prevention practices for AIDS. The few theory-based research studies that seek to explain individual differences in risk reduction are derived predominantly from the field of health education. Further, most of these studies are related to the widely espoused "Health Belief Model" (Rosenstock, 1974) and "Social Cognitive Theory" (Bandura, 1986).

The Health Belief Model (HBM) is based on the assumption that people consciously weigh the costs and benefits of health behavior in an attempt to maximize the positive outcome of their actions. Decision-making entails a consideration of six factors said to predict behavior: 1) perceived susceptibility to a health threat; 2) perceived severity of the consequences of the threat; 3) an individual's evaluation of the efficacy of possible actions; 4) the perceived costs of possible actions; 5) the influence of symptoms present/absent or mass media impact; and 6) demographic, cultural, and social psychological features that act as preconditions to action (Becker & Maiman, 1983).

Yet, this model may have significant limitations when it comes to behavior related to AIDS. In particular, this may be true when the object of consideration is the behavior of IVDUs which has often been characterized as impulsive, defiant of social norms, and determined by affect states that override cognitive decisions and/or beliefs. In a general statement, with clear application to the above characterization of IVDUs, Janz and Becker (1984) criticize the model 1) for its inability to explain differences in the interpretation of risk, 2) because it presumes that rationality invariably guides behavior, and 3) that decisions to act in specific ways are thought to be based on motivation to attain an optimal outcome.

In addition, fear often acts as a mediator of action in health-related behavior, but as Cleary et al. (1986) note, the Health Belief Model does not adequately account for the influence of fear on the decision to act. In fact, the HBM assumes that fear will increase motivation to act in a self-preserving, recommended manner. Such a conception of the influence of fear is an oversimplification with respect to AIDS risk reduction. As will be discussed below, fear appears to be a separate but interdependent variable that affects behavior differentially. Manageable levels of fear have been found to enhance risk reduction while fear at greater intensity levels appears to disrupt cognitive processes necessary for attitude and behavior change. The

HBM does not predict these negative outcomes due to its exclusive dependence on "consciousness" or "cognition". Fear driven risky behavior in such cases does not simply follow the recognition of cognitive "dissonance" (Maiman & Becker, 1974) required to motivate positive change. The desire to achieve success or health, or to avoid failure are insufficient to explain the motivation behind these actions.

Until recently, there has been little focus on untreated or community populations of IV drug users. Efforts on behalf of the National Institute on Drug Abuse have begun to provide greater insight into the prevalence of high risk practices for this population and the efficacy of various interventions to promote risk reduction (Schuster, 1988). Previous research (Rounsaville & Kleber, 1985) has tentatively established that the incidence of psychopathology in treated addicts is mirrored in samples of untreated addicts, with the exception of clinical depression which is higher among those seeking services. Therefore, it is hypothesized, that it is not so much the actual need for treatment but the perception of need which may be misconstrued by untreated addicts. When combined with inaccessibility to health and AIDS information, risk of exposure to HIV may be heightened for community populations, in comparison to other groups of addicts.

It is evident from an examination of the literature that the field of AIDS research has been most widely

influenced by theories of health behavior, to the exclusion of complementary theories outside of this discipline which might offer equally valuable, and much needed explanatory means to facilitate the understanding of risk reduction and its dynamics. Furthermore, the Health Belief Model, the most frequently used theoretical constructs explaining AIDS health-related behavior, may have specific drawbacks which limit its utility with respect to understanding AIDS risk reduction for IVDUs. Alternatively, the role of personality has not been examined for its potential relationship to level of behavioral risk for AIDS, and may hold particular promise in the assessment of clinical populations such as intravenous drug users.

Statement of Purpose

The importance of understanding the essential factors which influence risk reduction for AIDS is well understood. AIDS is a major national health problem we face with no cure or medical prevention, whose spread can only be controlled by individuals' willingness to change risky behavior. Elucidation of the dynamics which mediate risk-taking behavior, and impact on risk reduction, is central to a health education campaign for AIDS. Nonetheless, the role of personality in our understanding of risk-taking and risk reduction for AIDS, has thus far been underestimated and all but overlooked. This study seeks to address this need

through a multidimensional assessment of personality and its correlation with three groups of IVDUs, those who persist in risk-taking behavior at high and intermediate levels and those who are at reduced or low behavioral risk of exposure to the AIDS virus.

The present study will be an exploration of personality functioning and its correlation with changes in behavior in response to the threat of AIDS for an untreated population of IV drug users. The assessment methods to be employed, have been previously successful in the study of treated samples of IV drug users. This research is premised on the knowledge that both risk reduction behavior change and personality are heterogeneous among untreated IV drug users as a group. Correlations between the two have not been examined using the variables assessed in the present study. The five personality measures selected for use here, have been chosen because they are able to distinguish subgroup differences in populations of substance abusers and/or IV drug users more specifically.

In particular, this research will seek to establish group differences on measures of ego development, levels of sensation-seeking, DSM-III-R Axis I & II diagnoses, differences in the manifestation of depressive affect, and dimensions of Object Relations and Social Cognition.

Chapter I

Review of the Literature

Overview

This review of the relevant literature will include the following areas: (1) Risk reduction as it is related to several issues in the general field of health education and the methods used to conduct these studies. (2) Risk reduction as it has been investigated in the developing field of AIDS research; first, as it relates to gay and bisexual men and second, as it relates to IV drug users (IVDUs). (3) Personality studies on intravenous drug users that support the approach taken in the present study.

An Explanatory Model of Health-Related Behavior Change: The Health Belief Model

The Health Belief Model is a theoretical model currently used to explore individual variation in preventive health behavior. The model examines differences in access to health services, health knowledge, motivation and beliefs which are used to predict health outcomes. Beliefs about perceived susceptibility and severity of health risk, health motivation, perceived benefits and costs or barriers to action, presence or absence of symptoms, the influence of

mass media, and locus of control (Becker, 1974; Rosenstock, 1974; Maimom & Becker, 1974; Cummings et al., 1980) are factors said to either promote or impede desired change. Efficacy beliefs, derived from social learning theory (recently changed to Social Cognitive Theory: Bandura, 1986), are more recently included among the Health Belief Model concepts. These assess the degree of confidence an individual possesses in his/her ability to engage in a specific behavior.

The many beliefs within the Health Belief Model may have differing applicability to AIDS risk reduction. In general, perception of personal risk or susceptibility is a stronger motivator of behavior change than is knowledge in and of itself (Chilman, 1979). This may become a barrier to change when, for instance, an 'optimistic bias' (Weinstein, 1983) distorts the level of actual risk. The study of self-efficacy beliefs, or the level of confidence one has in their ability to implement a specific behavior, has yielded significant results in the assessment of risk reduction for both gay men and IV drug users (Emmons et al., 1986; Abdul-Quader et al., 1989; Des Jarlais et al., 1989b). Perceived benefits and costs of risk reduction have similarly been shown to be important ingredients of behavior change maintenance in gay men (Saltzman et al., 1989). However, severity (ex. of the threat) and perceived susceptibility beliefs (ex. the degree to which one perceives a

vulnerability to a given threat) by themselves, have not been effective in differentiating between gay risk-takers and risk-reducers (Emmons et al., 1986; McCusker et al., 1989). There is reason to believe this will also hold true for IVDUs (Connors, 1989).

Further, meaningful interactions between certain beliefs have also been found (Emmons et al., 1986; Joseph et al., 1987). We now understand, for example, that there are optimal levels of perceived susceptibility for gay men, beyond which perceived efficacy begins to decrease.

For some, perceptions of susceptibility and disease severity may be distorted and become an obstacle to change (Ostrow, 1986). In the case of AIDS, the long latency interval between date of infection and full blown AIDS, has the effect of minimizing the connection between transmission behavior and its consequences (Ostrow, 1986). In such cases, psychological defenses are employed to minimize a seemingly distant threat, and the perception of both vulnerability and susceptibility is reduced. Moreover, the perceived benefits (ie. attainment of pleasure and avoidance of pain) for engaging in high risk practices may be the single greatest barrier to change (Becker & Joseph, 1988). In this light, Perry and Markowitz (1988) have commented, "behaviors that are chronic, compulsive, ego-syntonic, positively reinforced by immediate pleasure, and linked to a distant abstract threat are relatively refractory to change." Since AIDS

prevention requires long-term protection, extreme changes in risk-taking behaviors are required (Fineberg, 1988). Thus, for many, the costs of change are perceived to be too great.

Risk Reduction Among Gay Men

Many investigators have reported on the singular and extraordinary record of positive behavioral change among gay men (Doll et al., 1987; McKusick et al., 1985; Winkelstein et al., 1987; Martin, 1987; Becker & Joseph, 1988). It should be noted that these studies primarily took place in San Francisco, Chicago and New York. It may be supposed that the great number of AIDS cases in conjunction with a well-organized gay community in these cities, contributed directly to such positive outcomes (Valdiserri et al., 1989). By contrast, in areas where the incidence of AIDS is considerably lower, awareness of the risks of AIDS may be similarly low. Persistence of high risk behavior, in the context of diminished awareness of AIDS, may consequently demand very specific risk-reduction interventions (Jones et al., 1987). Perception of the real threat of AIDS and personal susceptibility affects the adoption of risk reduction and is, at least in part, a product of its prevalence in a given geographic location.

One study (Emmons et al., 1986) that looked at the psychosocial predictors of behavior change in gay men, found that adoption of risk reduction was contingent upon the

interaction of perceived efficacy and perceived susceptibility, high levels of knowledge about AIDS, and supportive peer norms. This study obtained questionnaire data for 909 homosexual men and sought to determine the relationship between predictor variables (ex. health beliefs) and five self-reported behaviors which are believed to reduce the spread of HIV.

Using a multiple regression analysis, they found that the perception of efficacy and ensuing behavioral risk reduction appears to have been promoted by the realistic appraisal of vulnerability to HIV exposure. However, it was additionally noted that efficacy beliefs appeared to reduce positive behavioral outcomes when perceived susceptibility was at its highest. It may be, as the authors' contend, that fear and loss of hope which accompany such high levels of perceived susceptibility override one's confidence to employ specific behaviors to avoid a negative outcome. This latter group may simply feel it is too late for them to avoid infection.

Therefore, direct confrontation with a fear-arousing threat, which the authors suppose is a product of high levels of perceived susceptibility, appears to be a predisposing factor to engage in risk-taking behavior. For some, strong emotional states and what appears to be the incapacity to tolerate them, may produce untoward psychological consequences that compromise self efficacy and

compel seemingly irrational behavior. In such cases, the mechanism of affect expression in a state of arousal appears to be directly implicated in the degree to which risk reduction is adopted. However, the Health Belief Model is not useful in predicting behavioral outcomes that are the consequence of interactions between affects and health beliefs because it possesses no theory of affect. A theory of affect would need to contend with issues such as whether these results are best described as a product of relatively stable stylistic differences (ie. personality functioning), or the consequence of a state dependent arousal response that differs according to levels of perceived susceptibility. This study takes the position that enduring styles of affect expression are in fact crucial to behavioral outcomes.

The Emmons et al., study (1986) also examined a barrier to risk reduction that they termed 'perceived difficulty with the control of sexual impulses'. At the study's outset, this explanation was the one most frequently mentioned to explain ongoing unsafe behavior. Even though few subjects in the sample specifically identified themselves as having this difficulty when later interviewed, the difficulty was related to only one negative outcome, an inability to avoid anonymous sexual encounters. The converse was also found to be true: those who stated they could control sexual impulses were found to reduce the total number of sexual partners and

to modify anal intercourse (through condom use or withdrawal).

While this behavioral phenomenon is not discussed in the terminology of personality psychology per se, sexual disorders such as hypersexuality may be outward manifestations of enduring patterns related to psychological disturbance. Persistant high-risk sexual behavior has been described as compulsive or addictive behavior that reduces anxiety, but motivational and psychological factors have not been examined (Quandland & Shattis, 1987). This perspective may assist in the identification of underlying disorders which predispose individuals to hypersexualize, and help to differentiate between those who avoid or do not avoid anonymous sex even within such a group. These investigations, however, have not proceeded under these assumptions.

The emerging importance of social support to promote AIDS prevention is also underscored by the Chicago cohort study (Emmons et al., 1986) mentioned above. While membership in a gay social network did not predict risk reduction behavior, presence of peer norms or espoused values favoring risk reduction was significantly correlated with positive change.

A second study by Joseph et al. (1987) reported similar results to those found by Emmons et al.(1986). The report

focussed primarily on an analysis of the psychosocial consequences associated with the perception of being at high risk for AIDS among a sample of gay men. Many negative consequences were observed for those who perceived themselves at greater risk or felt more susceptible to AIDS: 1) Behavior change occurred with far less frequency; 2) obsessive/compulsive behavior (i.e, psychological disturbance) ensued; 3) social/role impairment resulted; and 4) more intrusive worries about AIDS plagued those with this perception.

In a study of gay men which evaluated the relapse to high risk behavior by previous risk reducers, Saltzman et. al. (1989) found that when perceived benefits were high and perceived costs of change were relatively low, these beliefs related positively to lower relapse rate. This suggests that these specific health beliefs are important in the maintenance of risk reduction.

When the effects of an individual's perception of their susceptibility to the AIDS threat and their sense of the severity of this danger were analyzed independently, no significant findings were obtained. This may be attributable to two omissions. Unlike the Emmons et al. (1986) study, the effect on outcome of level of perceived susceptibility and the interaction of susceptibility and efficacy to determine relapse factors were not analyzed. These omissions may have

limited their results.

In a study by McCusker et al. (1989) the strongest predictor of outcome behaviors was the initial level of unsafe/safe behavior. Results obtained for perceived susceptibility were different depending on the type of analysis used. In a cross-sectional analysis, greater perceived susceptibility was associated with unsafe behaviors, while in a longitudinal analysis, greater perceived susceptibility predicted safer behaviors. Perceived benefits of behavior change was not associated with any of the outcome behaviors. In light of the relatively weak association found between risk reduction and health beliefs, McCusker et al. (1989) suggest that "other variables, such as personal values or psychological barriers to change may be more relevant" (p.447).

Valdiserri et al. (1989) recently reported results of a randomized trial evaluating two risk reduction strategies. The addition of a 50 minute skill training session over and above an initial AIDS education accounted for a 33% greater increase in condom use when compared to the education alone. The enhanced intervention resulted in a 44% total increase in condom use within the 'intensive' experimental group. The men who participated in this study were volunteers, generally had full-time employment and a third were college-educated. Consequently, the generalizability of these findings is limited given such sample characteristics.

Several factors appear related to risk reduction among gay males. Risk reduction is related to the prevalence of AIDS in a given locale (Jones et al., 1987), initial level of unsafe/safe behavior (McCusker et al., 1989), interpersonal skill level related to practice of safe sex (Valdiserri et al., 1989), the level of perceived susceptibility which in turn was found to differentially affect efficacy beliefs (Emmons et al., 1986), and presence of supportive peer norms (Emmons et al., 1986). Maintenance of risk reduction over time was associated with relatively high benefits and equally low costs for prescribed behavior (Saltzman et al., 1989). In addition, it is quite evident from the Emmons et al. (1986) study, which depicts those engaged in hypersexual behavior and alludes to the role of management of strong affects (i.e., intensity of fear) in risk reduction, that personality variables might mediate behavioral risk reduction in ways that have yet to be explored. For instance, while Stall et al. (1986) have documented the negative effects of substance abuse on risk reduction practices and their maintenance over time, the relationship of these variables to the predispositional factor of personality has not been researched (Becker & Joseph, 1988).

Knowledge of Serostatus and Risk Reduction Among Gay Men

HIV antibody testing has been promoted as a vehicle to

enhance behavioral risk reduction among gay and bisexual men, when combined with comprehensive counseling (pre- and post-test) provided by trained clinicians (Francis, 1987; Goedert, 1987). While the need for self-protection would appear to be lower for those gay men who test positive for HIV antibodies, there is every reason to promote continued implementation of AIDS prevention practices. Continued risk reduction practices are necessary in order to reduce the risk of infection to sexual partners and to lower the risk of self-reinfection, which is suspected to speed up the disease process (Levy, 1989).

It appears that antibody testing does not in itself improve efficacy and enhance behavior change rates among those who find out their results (Soucy, et al., 1987; Ostrow et al., 1989). Most studies assert that the majority of seropositive (i.e., those who test positive for HIV antibodies) gay men reduce their frequency of high risk sex, but this is a relative finding only (Perry & Markowitz, 1988). For example, McCusker et al. (1987) found that fully 30% of known seropositive gay men from one sample continued to engage in unprotected insertive anal intercourse with multiple partners. In another sample of gay men who elected to find out their serostatus, seronegative men were unlikely to reduce their behavioral risk of HIV exposure (Fox, et al., 1986). Across studies, minimal improvements in positive behavioral outcome in response to HIV testing is a

consistent finding (Pesce et al., 1987; Calabrese et al., 1987; Willoughby et al., 1987).

Ostrow et al. (1989) further note that significant levels of psychological stress accompany knowledge of positive test results. This stress is hypothesized to contribute to the resistance or loss of hope that perpetuates risk-taking. Similarly, a review of 22 papers on behavioral responses to HIV antibody testing among gay men (Stempel & Moss, 1989) recently pointed out that 7 papers (30%) reported no difference in post-notification behavior of subjects. Although knowledge regarding serostatus does not consistently reduce risk-taking behavior, serotesting remains important because early identification of HIV infection and treatment with AZT may greatly slow the progression to full-blown AIDS (Lancet, 1989).

Risk Reduction Among IV Drug Users

Overview

The next sections on transmission behavior, education for risk reduction and reports of risk reduction include major and essential aspects of risk reduction among IVDUs which is the behavioral focus of this study. When risk reduction is mentioned, this is the context in which it occurs and the behaviors that will be referred to. In addition, this review both reflects the present state of

our knowledge and the topics which have been a predominant focus of concern.

Transmission Behavior - Intravenous Drug Use

Sharing injection equipment or a set of "works" is a phenomenon reported during at least a phase in virtually every IVDUs' drug-using career (Black et al., 1986). As Newmeyer (1988) has pointed out, "works" is merely a shorthand term for, the syringe, needle, "cooker", cotton and rinse water, all of which carry the potential to transmit the AIDS virus. Sharing seems to occur for a variety of reasons; sterile syringes are often hard to obtain, especially in many states which outlaw them, and sharing is reported to be an integral feature of social bonding among IVDUs (Friedman et al., 1986). Risking exposure through a shared set of works is often experienced as inconsequential for the IVDU undergoing severe narcotic withdrawal, whose only thought is the urgency of injecting heroin (Des Jarlais et al., 1986; Selwyn et al., 1987). Needle-sharing across friendship groups appears to account for the rapid spread of HIV infection among IVDUs from the time HIV is initially introduced into an IV drug-using community (Angarano et al., 1985; D.M. Novick et al., 1986; Robertson et al., 1986; Moss, 1987; Des Jarlais et al., 1988c; L.F. Novick et al., 1988).

Drug equipment sharing appears to be a fairly stable

phenomenon, strongly resistant to change. A significant subgroup of many samples studied, demonstrate continued needle-sharing despite an awareness of AIDS (Selwyn et al., 1987; NIDA Quarterly Report, 9/1989). AIDS knowledge has done little to change these practices for some IVDUs.

In one study (Selwyn et al., 1987) of two hundred and sixty-one IVDUs who were recruited from a methadone maintenance program and a large detention facility in New York City, 20% of the sample reported "persistent and undiminished needle-sharing", with an unknown number of subjects who shared on an irregular basis. Of those who reported continued sharing, 88% did so in spite of adequate knowledge about AIDS. "The most common reasons for continued needle-sharing were 'need to inject drugs, with no clean needle available" and 'only share with a close friend or relative'".

The number of people sharing injection equipment (Chaisson et al., 1987b) as well as the frequency of injection (Blattner et al., 1985; Des Jarlais, 1987b) are risk factors linked to higher rates of exposure to HIV and higher rates of seropositivity. Seropositivity has also been associated with total duration of drug use which may be an indirect measure of frequency of needle-sharing (Schoenbaum et al., 1986). Further, it has been reported that sharing of injection equipment across friendship groups occurs most

frequently at "shooting galleries" (ie. a house/building where drugs may often be purchased and injection equipment may be rented) (Chaisson et al., 1987a). Several studies (Cohen et al., 1985; Weiss et al., 1985; Schoenbaum et al., 1986; Marmor et al., 1987) conducted in New York City have established the connection between multiple sharing partners, use of "shooting galleries" and rapid spread of HIV.

Frequency of injection is not always related to severity of drug addiction, but is increasingly associated with another rapidly growing trend, the injection of cocaine. Since the desired effects of cocaine are short-lived, it is not uncommon for cocaine injectors to repeat administration every 10 to 30 minutes, in some cases approaching upwards of 20 injections a day (Gold et al., 1986; Siegel, 1984). Cocaine's pharmacologic effect or "high" is short-lived and an intense "crash" following the high reinforces repeated injection, often until a drug supply is exhausted. When needle-sharing exists in the context of cocaine injection, high frequency of sharing episodes may raise the likəlihood of HIV exposure.

However, the affect of cocaine on risk-taking has yet to be fully explored. Snyder et al. (1989), compared groups of exclusively heroin versus exclusively cocaine injectors while controlling for frequency of injection. Their findings suggest that factors other than frequency of injection

account for the greater likelihood that cocaine injectors will engage in both significantly riskier needle-use and sexual behavior. Although their study was unable to evaluate the two drugs' pharmacologic properties vis a vis risk-taking, the author's attribute these results to "underlying personality traits and/or environmental factors" (p.7).

According to a NIDA sample of approximately 3,724 untreated IVDUs, cocaine has replaced heroin as the preferred drug of injection (Myers et al., 1989). In this sample, 93% reported cocaine use compared to the 80% who claimed to use heroin. Of the total, 65% reported injecting a combination of the two (termed a "speedball") over a six-month period prior to interview. IV cocaine injection has been significantly correlated with HIV infection in a study of San Francisco IVDUs (Chaisson et al., 1988). In the same study, 26% of cocaine users previously stabilized on methadone began to inject cocaine only after entering treatment.

Transmission Behavior - Sexual Behaviors

AIDS is a sexually transmitted disease (STD) which has placed sexual partners of IVDUs at considerable risk for acquiring HIV. Consequently, although the largest portion of infected (seropositive) women are themselves IVDUs, a substantial number have never injected drugs. Their sole risk factor is sexual contact with an IVDU. Des Jarlais et

al. (1984) report that up to 80% of male IVDUs are in a primary relationship with non-IVDU women while female IVDUs are most likely to have male IVDUs as primary partners. IVDUs are not only the transmission link to female heterosexual partners but to perinatal transmission, through which the infants born to seropositive mothers are themselves infected from 25% to 50% of the time (Chiodo et al., 1986; Semprini et al., 1987).

Although the relative efficiency of transmission is not known for different practices and for direction of transmission (ie. male to female in comparison to female to male) (Redfield et al., 1985; Schultz et al., 1986; Fischl et al., 1987; Turner et al., 1989), exchanges of body fluids through vaginal, anal and oral sex are viewed as the highest risk sexual behaviors. In general, though it has not be quantified, sexual risk activities appear to be less efficient means of transmitting the virus than blood to blood transmission which occurs when IV drug works are shared (D'Aquila & Williams, 1987).

Education for Risk Reduction

Current AIDS education programs for IVDUs rest upon straightforward recommendations to sterilize drug "works" with bleach and to use condoms or latex barrier protection for sexual practices that might otherwise result in exchange

of semen or vaginal fluid or blood. Since the discovery that common household bleach will inactivate the AIDS virus (Resnick et al., 1986), it has been dispensed by outreach organizations in touch with the at-risk IV drug-using community, as the next best solution to stopping injection and needle-sharing.

Although it may be most desirable to enter formal treatment and cease drug injection altogether, treatment slots are limited in number. This prevents many IVDUs from entering treatment upon request. Waiting lists for treatment often have a high attrition rate since addicts must of necessity continue to obtain drugs illegally to maintain their addictions while they wait for services. Waiting list retention rates can be particularly poor for minority (Black and Hispanic) addicts. In New Haven, for example, minorities are underrepresented in drug treatment programs, and comprise only 30% of those in treatment (APT Foundation, 1988). For this and other reasons, minority individuals within the IVDU community may be at increased risk for AIDS and comprise a substantial percentage of untreated, community addicts.

Reports of Behavior Change to Reduce Exposure to HIV

Overview

In general, evidence from numerous studies (Des Jarlais

& Friedman, 1988a; Friedman et al., 1987; Ginzburg et al., 1986; Kleinman et al., 1987; Selwyn et al., 1985) suggests that IVDUs not only possess a sufficient level of accurate knowledge about AIDS but have made significant changes in their behavior to reduce risk (Chaisson et al., 1987b; Selwyn et al., 1987; Watters, 1987). However, several other investigations (Des Jarlais et al., 1989b; Flynn et al., 1987; McAuliffe et al., 1987) report risk reduction efforts are inconclusive; that change when it occurs is frequently inconsistent. Although under certain conditions, it is "quite clear that IV drug users will modify their behavior to reduce their risk of AIDS" (Turner et al., 1989), relapse to previous high risk behavior has frequently occurred when follow-up studies are evaluated (Des Jarlais et al., 1989b).

Many of the differences in study outcomes may be attributable to differences in setting, environmental circumstances, as well as differences in measures of outcome. The following studies in 1988, for example, examined risk reduction as a function of entry into methadone programs (Abdul-Quader et al., 1987; Ball et al., 1988; Blix and Gronbladh, 1988; Hartel et al., 1988; Yancovitz et al., 1988), syringe exchange programs (Alldritt et al., 1988; Buning et al., 1988, in press; Hart et al., 1988; Ljungberg et al., 1988; van den Hoek et al., 1988b), purchasing sterile injection equipment at pharmacies

(Espinoza et al., 1988; Fuchs et al., 1988; Goldberg et al., 1988), information campaigns (Bortolotti et al., 1988; de la Loma et al., 1988), and counseling with HIV antibody testing (Hemdal, 1986; Bottiger et al., 1988; Casadonte et al., 1988; Gibson et al., 1988; Moss & Chaisson, 1988; Olin and Kall, 1988; van den Hoek et al., 1988a). Across these studies, the percentage of IVDUs reporting positive behavioral changes varied considerably. Variation ranged from "poor" levels of change (de la Loma et al., 1988) to 85% of a sample reporting significant levels of change (Ball et al., 1988; Yancovitz et al., 1988). In addition, differences in local seropositive rates among IVDUs may greatly influence the degree to which behavior change is perceived as a necessary precaution against HIV infection.

Reducing their Risk - IVDUs

Risk reduction can be measured in various ways, since it takes different forms and may change over time. For example, rates of seropositivity differ widely from one geographic locale to another. High rates result in greater AIDS cases as well as heightened awareness in the IVDU community and appears to result in positive change. A recent study in New Haven (Schottenfeld et al., 1989, in progress), compared route of administration for treatment-seeking opiate addicts for the years 1986 and 1988 and found a significant decrease in the percentage of addicts who used intravenously and a commensurate increase in the percentage

of addicts who had never used IV or who had replaced IV use with intranasal, inhalation and oral use. This change was attributed to the high prevalence of AIDS in New Haven and the work of 19 community agencies engaged in AIDS outreach and education.

Rates of seropositivity also vary between those individuals who seek treatment and those who do not, suggesting there may also be parallel differences in levels of risk reduction. A comparative study of drug users in treatment and those on the 'street', found a 12% and a 33% seropositivity rate, respectively (McCoy et al., 1989).

Advocates of needle exchange programs and the legalization of the sale and possession of syringes propose that having the means to change behavior and reduce risk may be the key for preventing AIDS in some IVDUs. Two studies in New York found that self-reported use of illegal sterile injection equipment increased from 1984 to the present (Friedman & Des Jarlais, 1987; Selwyn et al., 1987). The independently established rise in the demand for sterile injection equipment in New York has been viewed as corroboration of self-reported behavior change (Des Jarlais, Friedman, & Hopkins, 1985). However, a recent study conducted in Portland, Oregon, where sterile needles are available without prescription, demonstrates that availability of injection equipment may be only a partial

solution. Sibthorpe et al. (1989) interviewed a sample of 150 IVDUs and found that over half currently shared their needles, 27% never cleaned their needles for those found sharing, and 50% cleaned needles by using water only. Needles were readily available to members of this sample, where over 95% knew that sharing needles might result in infection, and perception of personal risk did not appear to prevent the sharing of unsterilized needles.

Since beginning the distribution of small bleach bottles as a means to sterilize injection equipment, two studies have recently demonstrated that rates of regular bleach use have jumped from under 10% to upwards of 50% to 67% (Chaisson et al., 1987b; Watters, 1987). In three studies reported by Friedman et al. (1987) and Selwyn (1987), the majority of addicts questioned, reported some form of AIDS risk reduction. Reduction here includes increased use of sterile injection equipment, reduction in the number of persons sharing a set of "works", or reduction/elimination of IV drug use.

By contrast, several studies have shown the limited effectiveness of risk reduction for some several samples of IVDUs. A study in Baltimore revealed that although risk reduction was evident it could not be linked to the presence of outreach workers (McAuliffe et al., 1987). A second study in Sacramento, California, discovered that knowledge of AIDS and transmission routes did not deter risky behavior for a

majority of addicts in that city (Flynn et al., 1987).

A significant and at times limiting factor on risk reduction appears to be the influence of peers. While Des Jarlais and Friedman (1988d) report that "the strongest correlate of behavior change in the individual was whether that individual believed his or her friends to also be changing their behavior in response to AIDS", an equally powerful peer influence in the opposite direction was recently reported by the same group (Des Jarlais et al., 1989a). They found that an intensive AIDS education program was insufficient to prevent a sizable minority of heroin sniffers from advancing to injection in a relatively brief period of time. Close relationships or peer behavior was implicated in this increase in high risk practices.

Unfortunately, studies of seroprevalence have not found any differences in rates of infection between those who reported behavior change and those who reported no change (Friedman et al., 1988; Moss et al., 1988). This result indicates that reported behavior change (whether use of illegal injection equipment or bleach to sterilize injection equipment) has not been shown to protect specific IVDUs from exposure to HIV and seroconversion. Rather than calling into question the veracity of self-reported behavior, high seroprevalence in the cities where research was conducted may signify that simple reduction of high risk may be

insufficient protection against HIV infection. As a result, a single sharing episode is more likely to result in exposure to the virus.

It appears that IVDUs know less about the risks of HIV exposure through sexual activity (Ginzburg et al., 1986; Williams et al., 1987) and do less to prevent that exposure when compared to IV drug risk-taking (Casadonte et al, 1988; Mosely et al., 1988; Primm et al., 1988; Flynn et al., 1988; Battjes & Pickens, 1988; Espinoza et al., 1988; Lowenstein et al., 1988; Bortolotti et al., 1988). Even when IVDUs possess knowledge of this transmission route, they reduce their risk less readily (Friedman et al., 1987; Watters 1987a; van den Hoek et al, 1988b).

In one study of methadone maintained addicts, 14% had made changes in their sexual behavior compared to 54% who reported decrease in high risk related to IV drug use (Friedman et al., 1987). Surveys conducted in several urban centers across the country assessed recent entrants into methadone programs and discovered only 14% of those questioned had begun or increased condom use. Greater changes by far were reported for drug use than for sexual practices (Battjes and Pickens, 1988). A second study reported that only 5% of study participants reported condom use at all. Of this percentage, condoms were only used in 35% of the total number of sexual encounters (Primm et al., 1988). In San Francisco, a follow-up study of bleach

distribution showed that only 15% of subjects reduced their sexual risk-taking compared to 76% reporting the use of bleach to inject more safely (Watters et al., 1988).

Similar results have been obtained in studies on IV drug users not in treatment (NIDA Quarterly Report, 1989; Snyder & Meyers, 1989; Kleinman et al., 1987). Kleinman et al. (1987), discovered that 31% had made some changes to reduce their sexual risks in relation to 41% who had changed their injection behavior. National statistics on over 10,000 untreated addicts provided by NIDA Outreach Demonstration Projects show a sizable proportion (64%) continue to engage in high risk behavior, both through IV drug use and sexual practices (NIDA Quarterly Report, 1989). Unlike studies of treatment seekers, this untreated sample, appear to engage in risky IV drug use at the same rates as they engage in risky sexual behavior.

Voluntary HIV Antibody Testing and Risk Reduction

Many outreach strategies have tried to encourage HIV antibody testing in conjunction with education as a method to facilitate behavior change. Nonetheless, results on the impact of testing with respect to behavior change are mixed. A clear trend identified early on was the alteration of behavior among seropositives, who apparently acted to protect their partners from risk (Casadonte et al., 1986; Cox et al., 1986; Marlink et al., 1987). According to these

studies, though seropositives were acutely affected upon learning their antibody status, the psychological distress noted upon hearing their test results diminished in several weeks. High risk behavior was not seen to change equivalently for those testing antibody negative. They persisted in high risk behavior, presumably under the impression that they were not susceptible. Consistent with these findings though perhaps less sanguine, risk reduction occurred for 'some' percentage of those tested in two additional studies of IVDUs (Ginzburg, 1984; Des Jarlais et al., 1987).

In a recent article on the success of a needle/syringe exchange program in Amsterdam, van den Hoek et al. (1989) found that not only did IVDUs not increase the proportion or frequency of drugs they used, a strong decrease in the prevalence of borrowing and lending used needles resulted. In addition, this behavioral risk reduction was independent of knowledge of serostatus. This indicates that providing both the means to reduce risk (ie. needles) in combination with testing and counseling may be a particularly helpful strategy for many IVDUs at risk, better than either intervention alone.

The Health Belief Model & Risk Reduction Among IVDUs

Compared to research on gay men, studies of IVDUs that

have examined risk reduction as predicted by health beliefs are fewer in number and only recently available. Two studies reviewed below (Abdul-Quader et al., 1989; Des Jarlais et al., 1989b), obtained significant results only on scales of perceived self-efficacy. The limitations of several other health beliefs will also be discussed.

An examination of the predictors of sexual risk reduction found that of the 55% reporting one or more sexual behavior changes, there were three positive predictors of change: having more than one sexual partner, having friends who made sexual behavior changes and having a strong sense of self-efficacy about being able to make those changes (Abdul-Quader et al., 1989). Subjects included in this study were classified as a "street sample". In addition, perceived present or future susceptibility to infection were not correlated with changes in behavior.

Characteristics which uniquely define IV drug users in general, may also limit the effectiveness of the Health Belief Model because it is based on the attributes of non-clinical samples. For example, one of the arguments against using perceived susceptibility to risk as a means to distinguish IVDU risk-reducers from risk-takers is that the perception of risk in itself may be a potent attraction to engage in needle-sharing (Connors, 1989). Likewise, it is unclear to what extent belief in the severity of the health related risk associated with needle-sharing will in fact act

as a deterrent. A study conducted using a sample of gay men (Saltzman et al., 1989), suggests that severity is not associated with reduction of risk. In such cases, intervening variables may be used to distinguish between those who perceive risk (and its severity) and do or do not change behaviors which increase the risk of exposure to HIV. The use of personality variables proposed in the present study will address this limitation.

Indeed, perceived susceptibility to AIDS risk is a concept that appears to yield best results for non-clinical populations (DiClemente et al., 1989; Hingson & Strunin, 1989). In studies on gay men, when the interaction of degrees of perceived susceptibility is analyzed with perceived self-efficacy, the effect on behavioral outcome variables yields more significant results. Emmons et al., (1986) determined that the level of perceived susceptibility was a crucial factor in whether gay men adopted safe sexual practices, and thus were able to feel confident in their ability to engage in safe behavior (i.e., possessing strong self-efficacy beliefs). As described above, for many members of the study sample, high levels of perceived susceptibility with a concomitant loss of self-efficacy resulted in risk-taking behavior.

In contrast to beliefs about susceptibility or severity of risk, the belief that particular behaviors will guard

against HIV infection (the efficacy belief included in the Health Belief Model) was able to predict maintenance of behavior change in 64% of a 401 subject sample of street addicts (Des Jarlais et al., 1989b). Self-efficacy or efficacy beliefs do appear to be a promising research tool to investigate initiation of high risk reduction and its maintenance over time.

Personality, Symptomatology and Risk Reduction

The assessment of personality and symptomatology as they relate to risk reduction is limited to a small number of studies which are presented and critiqued below.

In a study of personality variables and their relationship to risk-taking among IVDUs, Carlos et al. (1989a) assessed 201 patients in a detoxification unit. Three measures were used to assess personality disorders, Eysenck's EPQ, Catell's IGPF and the MMPI. Results showed only statistically significant correlations for the Catell scale on the suspicious and shrewd factors, which were related to seropositivity. The seropositive group tended toward psychoticism (EPQ-P scale) and psychopathological deviance (MMPI) but these trends did not reach a level of statistical significance, $P>.05$. The results of this study are inconclusive because there is no means to distinguish the direction of the relationship between personality characteristics and serostatus. Findings of significance may

be related to HIV illness itself, rather than the proposed features of personality which might predispose some IVDUs to take greater risks.

In one of the only published studies to date which has attempted to relate psychiatric symptomatology to risk-taking behavior, Carlos et al. (1989b), found no correlation between affective disorders (anxiety and depression) and HIV serostatus, presumed to be an indicator of the degree of risk-taking (ie. needle-sharing). Affective disorders were found to be high in both groups regardless of serostatus for this sample of inpatient detoxification patients.

The limitations of the two Carlos studies are the same. In these studies there appears to be no direct measure of risk-taking. It is presumed only on the basis of seropositivity. A true measure of risk-taking would take into consideration high risk behavior engaged in after an awareness of AIDS was present. A percentage of the study subjects may have been infected prior to an awareness of AIDS and may have engaged in safe practices thereafter. In addition, the issue of relative risk reduction is crucial in distinguishing between those who make large changes but do not eliminate risk and those who make no changes and persist in the riskiest of behaviors. Simply by assessing seropositivity, differences in willingness and capacity to reduce risk as well as actual effort to implement safer practices are lost. Type and degree of risk reduction

efforts are consequently impossible to assess here. The present study seeks to avoid some of these pitfalls through an assessment of current behavioral risk which represents post AIDS awareness behavior. However, differences between risk-reducers who eliminate risk and those who do not will not be assessed in this study.

It is widely reported, that dually diagnosed IVDUs have poorer treatment outcomes (Rounsaville et al., 1982 & 1986), yet psychiatric comorbity has not been systematically assessed with respect to risk reduction behaviors for HIV. Data is available for a single study (Brooner, 1989 & 1990) which assessed 100 IVDUs who enrolled in an HIV testing and education program. Presence of antisocial personality disorder was the only diagnosis that correlated with both higher percentage of needle sharing as well as greater number of needle sharing partners. Frequency of injection did not vary according to diagnosis. Thus, diagnosis of antisocial personality disorder appears to predict greater involvement in HIV high risk practices; how the drug was used proved to be significant, not the amount of drug used.

Bihari and Ottomanelli (1989) prepared a report on 29 substance abusers hospitalized for detoxification from heroin. They examined specific defense mechanisms using the Defense Mechanism Inventory in this sample which engaged in substantial risk related behaviors. The intrapsychic

defenses most prevalent in this group were the defenses of denial and intellectualization. Given the exploratory nature of the study, tentative statements were made regarding the involvement of these defenses in continued substance abuse and the related risk of exposure to HIV. Individuals in the sample understood the risks of AIDS even though they practiced high risk behavior. This study is limited by virtue of the small sample size and by the lack of a comparison group. In addition, no discrimination between individuals on the basis of defense mechanism and subsequent correlation with degree and/or type of risk behavior was reported.

With the exception of one significant study (Brooner et al., 1990), which predicted engagement in highest risk activity on the basis of a diagnosis of Antisocial Personality Disorder, the relation between personality variables and IVDUs' risk-taking has not been empirically established.

Differences Among IVDUs: Personality Types, Ego Development and Symptom Picture

The majority of studies to date, including those discussed below, have been conducted on treated IV drug users, most of whom have been opiate addicts. This review will focus on personality traits and disorders, level of ego development, and symptomatology as these are linked to

severity of drug addiction. In the absence of a theory of personality that might predict level of HIV risk-taking, the following approach will be taken: it is presumed that severity of addiction, variously defined, will significantly correlate with HIV risk status. The rationale for using particular measures of personality in the present study will therefore be established in the following review, as they have been used as indices of addiction severity and its correlates (i.e., for example, poor social adaptation and treatment outcomes).

In treatment-seeking opiate addicts, the presence of personality disorders is common but is found to be heterogeneous (Kosten et al., 1982). Kosten et al., diagnosed borderline (14%), narcissistic (10%), and antisocial (55%) types in a sample of nearly four hundred addicts. A sizable percentage (32%) of their sample received no diagnosis of personality disorder at all, while another 24% received multiple diagnoses for personality disorder. Severity of addiction was associated with severe, multiple personality disorders.

In a 1983 study of treated opiate addicts, Rounsaville et al. found approximately 55% could be classified as antisocial, according to RDC and the SADS-L diagnostic criteria. Further distinctions were made between primary and secondary antisocial opiate addicts, on the basis of whether the defining criteria for the diagnosis appeared before or

after involvement with drugs. Accordingly, primary antisocial traits predated drug use versus secondary antisocial traits that arose purely in relation to the need for drugs. Not surprisingly, secondary antisocial addicts reduced criminal activity when the need for drugs was removed (ie. when they entered treatment). Primary antisocial addicts did not alter level of criminal activity simply because of entry into treatment. In addition, in comparison to non-antisocial addicts, both types of antisocial addicts were found to have higher rates of borderline personality disorder, depressive disorders and anxiety disorders, and were hypothesized to have more severe disruptions in psychological development due to 'disruptive childhood events' and more parental psychopathology. Typically, this group had more severe problems with impulse control as well as significant disturbances in the regulation of mood and affect. Antisocial personality may strongly correlate with behavioral risk-taking and high exposure to AIDS, while primary antisocial addicts may be the least responsive to educational efforts to reduce risk.

The relation between these findings for a treated sample and predictions for an untreated, community sample of addicts is not straightforward. Evidence exists both for and against the expectation of similarly high rates of antisocial traits in a community sample. In a 1985 assessment of untreated, community addicts, Rounsaville &

Kleber found that this group functioned at a somewhat higher level but were also substantially impaired not unlike treatment-seekers. Nevertheless, in general, many investigators have found that treatment-seeking substance abusers are significantly more impaired according to rates of psychiatric syndromes, personality disorders and secondary or concurrent substance abuse problems than are community samples (Rounsaville et al. 1982; Khantzian & Treece, 1985; Rounsaville & Carroll, in press).

Another sample of 97 treatment-seeking, opiate addicts were assessed using the Loevinger Sentence Completion Test. Level of ego development was then correlated with a variety of additional factors (Wilber et al., 1982). Differences were found within the addict sample between those with internalized standards of self-regulation and those functioning at lower levels of ego development. In addition, those at developmentally lower levels exhibited greater psychological disturbance, poorer social adaptive mechanisms, and more severe drug use. Developmental immaturity also predisposed addicts to poorer social outcomes.

In an attempt to understand the factors that enable community addicts to function without utilizing treatment, Rounsaville and Kleber (1985) compared community addicts to treatment-seeking addicts. They found that treated addicts

were less often polysubstance abusers, had a higher incidence of depression, had greater legal difficulties related to drug use, and were more likely to have poorer social functioning. The two groups were similar with respect to opiate use, overall indices of legal problems and involvement in illegal activities, had comparable employment functioning and equivalent rates of psychiatric disorders (excepting depression). Motivation to seek treatment appeared to coalesce out of a matrix of severe social, legal and psychological difficulties related to drug use. That depression is the only psychiatric disorder to distinguish these two groups of addicts suggests that greater relative ability to regulate depressive affects may be present in community samples, perhaps through their greater ability to function socially.

In two studies of treatment-seeking opiate addicts, (Blatt and Schichman, 1981; Blatt et al., 1984a), depression was also found to be widely prevalent. Depression, however, revolved not around issues of dependency, neglect, abandonment or rejection but was focussed upon issues of guilt, self-criticism, low self-esteem and shame. Type of depression was distinguished through use of the depressive experiences questionnaire (DEQ), derived from a psychodynamic model of depression. Excessive levels of guilt and self-criticism were positively related to severity of opiate addiction.

Convergent validation for the presence of two distinct subgroups of depressive personality is provided by a study which assessed depression using both the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978), based on a cognitive model of depression, and the Millon Clinical Multiaxial Inventory (MCMI; 1981) which is based on concordance with DSM-III-R nosological classifications (Goldberg, et al., 1989). DAS factors for 'performance evaluation' and 'approval by others' appear to correspond to the DEQ's self-criticism and dependency dimensions.

In several studies, the personality trait of sensation-seeking has been linked to drug use (Zuckerman, 1972; Galizio & Stein, 1983; Kosten & Rounsaville, 1989). Kosten and Rounsaville (1989) sought to understand the relationship between psychiatric diagnoses and sensation-seeking, whether the motive to try drugs was related to sensation-seeking and if there could be found a familial association of sensation-seeking in a group of treated opiate addicts and their first degree relatives. Results of this study demonstrated that on the sensation-seeking scale (SSS), younger age of first use of many drugs, alcohol abuse diagnosis, antisocial personality, and being male predicted higher scores. In addition, drug abuse diagnosis was the strongest predictor of high sensation-seeking when drug diagnosed groups were compared to nondrug diagnosed sibling groups. The sensation-seeking scale has been used to distinguish differences both

within a substance abusing population and between this population and a non-drug diagnosed population.

The increased prevalence of cocaine use among IV opiate abusers, in addition to the commensurate rise in IV cocaine abuse alone, has been shown to directly and indirectly relate to the practice of high risk behavior (Chaisson et al., 1988; Friedman et al., 1988). In this case, cocaine's indirect association with high risk practices is related to heightened sexual arousal and/or the increased exchange of sex for money and drugs. Rounsaville & Carroll (in press) have presented preliminary findings for 149 cocaine abusers which are suggestive with respect to the diagnostic characteristics of the current study sample.

Rounsaville & Carroll (in press) discovered in their sample, that lifetime rates of psychiatric disorders in treatment entering cocaine abusers were parallel to opiate addicts according to elevations in diagnosis of major depression, antisocial personality disorder, and alcoholism when compared to a community sample. These results confirm prior diagnostic classification of cocaine abusers, though earlier work also found higher rates of dysthmic, bipolar, and cyclothymic disorders as well as narcissistic and borderline personality disorders (Gawin & Kleber, 1986; Helfrich et al., 1983; Weiss et al., 1983). However, when cocaine abusers were compared to opiate addicts,

cocaine abusers were found to have less frequent occurance of major depression and increased rates of alcoholism (Rounsaville & Carroll, in press).

Object Relations & Social Cognition: A Multidimensional Developmental Approach

Based on the assumption that self and object representations reflect a developmental progression along multiple and interdependent cognitive and affective processes, Westen and colleagues (1985) have devised several object relations measures with which to score narrative data. TAT measures have been used by Westen et al. (1989) to empirically describe the cognitive and affective mediators of pathological interpersonal functioning of borderline adolescents and adults, establishing at the same time that projective data "can be reliably and validly coded to yield insight into fundamental psychological processes" (p.23).

In their research on the object relations of reliably diagnosed borderline adolescents, Westen et al. (1989; 1989, in press) set out to empirically test the validity of theoretical claims widely encountered in the psychoanalytic literature. Using the TAT scales that they developed, Westen reported (1989, in press) that borderline adolescents differed from matched normal and psychiatric controls in several ways. Borderline adolescents experience the object world as strongly malevolent, relate to others in a purely

need-gratifying manner and understand the motivation of others in age-inappropriate, oversimplified, often illogical and idiosyncratic ways. This confirms clinical observation and aspects of psychoanalytic theory relevant to adolescents. In addition, however, the representations of objects from their interpersonal world were often quite complex (i.e., beyond that of a four year old), presenting a challenge to the theoretical assumptions of the etiology of borderline arrest thought to derive solely from the preoedipal era.

The presumption that an individual's "object relations" is not a unitary phenomenon but rather consists of interdependent, multiple dimensions is further supported in a comparison of borderline adults and borderline adolescents (Westen et al., 1989). In this study, clinician-diagnosed adults and their adolescent counterparts differed in expectable ways on multiple developmental dimensions: adult borderline patients demonstrated greater relative maturity than adolescents. In addition, intervening maturation beyond adolescence into adulthood precludes a common preoedipal developmental arrest. Thus, "object relations development continues beyond the preoedipal years in borderline patients" (p.11). In sum, this research supports the advancement of a multidimensional approach to object relations' theory-building and hypothesis-testing.

A recent study (Keller, 1989) compared diagnosed

cocaine abusers, opiate abusers and a normal control using a TAT rating system derived from a theory of psychoanalytic object relations, similar to the approach taken in the present study. Results confirmed that cocaine abusers are significantly less impaired than opiate abusers on a scale of affect tolerance. Character style was examined in the same study by the MCMI, revealing that both cocaine and opiate abusers are narcissistic. The Object Relations scale confirmed this finding. However, narcissism on the MCMI took different forms: cocaine abusers' narcissism was counterdependent and opiate abusers' narcissism was dependent. These results suggest that TAT measures can be effective, valid means to assess aspects of interpersonal functioning among substance abusers and that, in combination with the MCMI, a comprehensive multiple measure approach to assessment yields best results.

SUMMARY

Reviewers of the risk reduction literature for populations of both gay men and IVDUs conclude that insufficient attention has been paid to the determinants of preventive behavior in response to the AIDS epidemic (Becker & Joseph, 1988). The most widely used theoretical model to explain differences in risk reduction efforts has been shown to yield inconsistent results, leading researchers to recommend that future studies pursue the investigation of

psychological barriers (McCusker et al., 1989). In addition, no studies have yet focussed on a multivariate model which examines personality and psychiatric diagnosis as these may relate to risk reduction among untreated samples of intravenous drug users. Nor has an Object Relations & Social Cognition approach, that can provide more subtle and complex insight into the affective and cognitive mediators of action, been brought to bear on the current issue of risk reduction.

The observation that personality disorders, traits and psychiatric profiles are heterogenous among substance abusers as a whole has also been shown to hold true specifically for opiate addicts (Rounsaville et al., 1982). IVDUs' behavioral response to the threat of AIDS is also heterogeneous (Des Jarlais & Friedman, 1988b) and may converge in meaningful ways when correlated with personality and symptom features.

The literature suggests that the following characteristics may differentially predispose addicts to take greater risks that expose them to AIDS: 1) differences in early onset of drug use, which are associated with sensation-seeking, 2) excessive levels of depressive guilt and self-criticism, which are related to severity of addiction, 3) immaturity of ego development which strongly correlates with poor social functioning, and 4) antisocial

personality which is shown to predict poor outcomes on multiple measures of adaptive ability, higher frequency of psychopathology and the trait of impulsivity. These personality attributes may likewise promote persistant risk-taking among addicts already prone to engage in high risk behavior.

In the personality/symptomatology studies reviewed above, personality has been examined in relation to drug abuse diagnosis. Two approaches to psychopathology and its measurement have been described. One defines disturbances of affect and personality organization according to current psychiatric nosology, and is based on behavioral/symptomatological signs of psychopathology. The other, based on individual differences in the way pathological experience is constructed and given meaning, is taken from a psychodynamic theoretical model of personality.

Few recent studies in personality (Goldberg, et al., 1989) have sought to demonstrate convergent validity between diverse theoretically based measures of personality and instruments designed to assess personality disorders according to accepted psychiatric nomenclature. The present study will employ measures from accepted psychiatric practice of research (ex. MCMI-II) as well as a psychodynamic theoretical orientation (ex. DEQ & Westen scale) and will seek to establish differences on these measures which correlate with three groups of IVDUs: those

who are risk-takers at high and intermediate levels and those who are at low risk. The use of multiple measures will help to establish convergent validation of aspects of personality functioning and will facilitate the integration of so-called objective and subjective data.

Use of multiple measures is important for other reasons. It is also anticipated that measures which assess object relations and ego development will more specifically distinguish between individuals similarly diagnosed, using criteria often regarded as more objective. For instance, it is expected that subtypes of antisocial personality disorder will be found for this population of IVDUs on the basis of differences in ego development, capacity for emotional investment in relationships, and other dimensions of object relations. Moreover, greater specification of subtypes, in some cases has shown dramatic differences. For instance, this was exemplified most obviously, on gross measures of affective disturbance, between antisocial personality disordered opiate addicts with and without major depression (Woody et al., 1985). Those diagnosed with major depression have generally responded well to psychotherapeutic intervention in contrast to those without this diagnosis. With the addition of the Westen TAT Scale, and through its multidimensional developmental approach, both a sensitive and comprehensive assessment of personality functioning will be employed. In addition, although between 68% and 90% of

treated addicts are said to have some form of personality disorder, nearly a quarter may have none (Kosten et al., 1982). It is therefore important to include a means to assess personality functioning that will yield a continuous measure for all subjects, which measures of personality disorder alone may not provide.

Hypotheses of the Study

Hypothesis 1: It is expected that high risk-takers will have the lowest scores (ex. poorest) for the Westen scale on all dimensions, both for neutral and high arousal cards: 'complexity of representations of people', 'affect tone of relationship paradigms', 'capacity for emotional investment in relationships and morals' and 'understanding of social causality'. Intermediate risk-takers will score higher than high risk-takers but lower than low risk-takers. Risk reducers will have the highest scores (ex. best or most mature) on this scale of object relations for neutral cards and also in response to the high arousal cards. Thus, a group main effect is predicted for arousal level. The rationale for this hypothesis is found in Wilber et al. (1982), who found that specific ego developmental differences among IVDUs were statistically predictive of poor outcome on several dimensions of functioning. It is expected that similar differences will be observed on a variety of developmental measures, such as the ones comprising the Westen Scale of Object Relations and Social Cognition. Affect tone, which is not a developmental scale, has shown strong associations with drug abuse in itself and severity of drug abuse (Keller, 1989).

Hypthesis 2: It is expected that risk-takers will be higher sensation-seekers compared to intermediate risk-takers, who will be higher sensation-seekers than low risk-

takers. The rationale for this hypothesis is found in Kosten and Rounsaville (1989), who found that high sensation-seeking was associated with antisocial personality disorder, diagnosis of alcohol abuse and severity of drug abuse.

Hypotheses 3a, 3b, 3c: It is expected that diagnoses on the MCMI-II, where BR>75, of (3a) severe personality disorders (i.e., schizotypal, borderline, and paranoid), (3b) clinical syndromes (i.e., anxiety, somatoform, bipolar: manic, dysthymic, alcohol, and drug disorders), and (3c) severe clinical syndromes (i.e., thought disorder, major depression, and delusional disorder) will be strongly associated with high risk-taking behaviors. The rationale for this hypothesis is found in Rounsaville et al. (1982 & 1986), who suggest that severity of personality disorder, diagnosed multiple disorders of personality and severity of psychopathology are linked to poor treatment outcomes.

Hypothesis 4: It is expected that evidence of severe antisocial personality disorder, as measured on the MCMI-II, will be strongly associated with high risk-taking. The rationale for this hypothesis is related to findings in the literature which associate Antisocial Personality Disorder (ASPD) with multiple, poor outcomes (Rounsaville et al., 1983). To date, antisocial personality disorder is also the only diagnosis which has been correlated with needle-use behavior associated with high risk for HIV (Brooner, 1989).

Hypothesis 5: It is expected that high risk-takers will score at the lowest levels of ego development, as measured by the Loevinger Sentence Completion Test, with those at intermediate risk scoring somewhat higher, compared to those at low risk who are expected to score the highest. The rationale for this hypothesis is derived from Wilber et al. (1982), who found that low levels of ego development were highly associated with greater psychological disturbance, poor social adaptation, and more severe drug abuse.

Hypothesis 6: It is expected that high risk-taking status will be associated most strongly with Factor 1, dependency, as measured by the Depressive Experiences Questionnaire (DEQ). Factor 1 is said to assess the degree to which one's experience of depression may focus around issues of abandonment, oral neediness and fears of neglect, that is often termed an anaclitic depression. Low risk-taking status is expected to be strongly associated with elevated scores on Factor 2, Self-Criticism, which on the DEQ indicates a guilt-oriented experience of depression. Intermediate risk-taking status is expected to be associated with moderate or mid-range scores on both Factor 1 and Factor 2, that will indicate a mixed developmental picture where the focus of the depressive experience will exemplify qualities of both dependency and self-criticism. The rationale for this hypothesis is found in Blatt et al.

(1984a), who argue that those oriented around issues of dependency are fixed at a more primitive level of development than those whose depressive style is self-critical.

CHAPTER II

METHOD

Subjects. 112 intravenous drug users were interviewed for this study on needle-risk and its relation to personality, and were assigned to one of three risk groups, low, intermediate and high, based on an index of needle-risk behaviors. Participants were recruited through a demonstration research grant funded by the National Institute on Drug Abuse (NIDA), entitled AIDS Outreach (Rounsaville, 1989). A Community Health Education Center, located in New Haven, Connecticut, served as the grant headquarters, where all interviews were conducted. Those interviewed represent a segment of the non-treatment seeking, community addict population thought to be at greatest risk of spreading the AIDS virus.

IVDUs who completed a reliable initial interview for the AIDS project were considered for inclusion in the present study on personality, if they also were at least 18 years of age and had a 9th grade education or better. To rule out the possible influence of HIV dementia on personality measures, only non-symptomatic HIV+ subjects were invited to participate. In addition, all subjects agreed to show the interviewer recent needle marks to confirm that they used drugs intravenously. Thus, all English-speaking subjects who met the above criteria of

inclusion, were willing to participate and gave consent comprised the study sample. A confidentiality certificate issued to the AIDS Outreach Grant by the Federal Government covered partipation in this research study and was reexplained in full to potential subjects.

Eighteen subjects who had scheduled personality interviews did not return or attempt to reschedule. Blacks were twice as likely as whites not to show for an interview (12/6). On the other hand, whites were more than twice as likely to reschedule a missed interview than were minority candidates (9/4). This resembles an analogous pattern of waiting list attrition for minorities that has been reported by several treatment programs in New Haven (APT Foundation, 1989).

Interviewing for the personality study was conducted over 8.5 months, beginning January 30, 1990 and ending September 19, 1990. 99 subjects were included in the final data analysis. Thirteen subjects were deleted due either to a random response pattern to the MCMI-II (n=3) deemed invalid or because a subject's self report was open to question (n=10), when a sexual and IV drug-using partner gave contradictory information to the same interview. In the latter case, subjects were found to be under-reporting their level of needle-risk behaviors in a socially desirable manner, when compared to their partners' responses. Blacks

were more than three times as likely to under-report risk level or respond randomly to the MCMI-II than were their white counterparts (10/3).

When the numbers of African American subjects who did not show up for an interview are considered together with those deleted for under-reporting risky behavior or for an invalid MCMI-II, this explains the over-representation of white subjects compared to black subjects (52%, 41%) in the study sample, when these percentages are contrasted with the overall racial composition of IVDUs participating in the AIDS Outreach Grant (White, 33%; Black, 48%; Hispanic, 18%).

Demographic Characteristics of the Sample

The study sample consisted of 58 males and 41 females, ranging in age from 18 to 56 years with a mean age of 35.24 (SD=7.9). The greatest number of subjects, 33, reported they had never been married, 13 were in their first marriage, 9 said they were remarried, 11 were separated, 25 were divorced, 6 were widowed, and 2 considered themselves to be cohabitating. The sample had the following racial distribution: 51 Whites, 41 Blacks, 6 Hispanics, and 1 American Indian. 32 subjects said their major source of income was a job they had or have, 5 were receiving unemployment benefits, 4 were on SSI, 17 were receiving welfare, 10 subjects had a spouse who supported them, 5 were dependent on family members for support, 2 depended on

friends, and 23 listed illegal activities as their major source of income. 21 others reported a portion of their income came from illegal activities. Therefore, a total of 44 subjects were willing to say they supported themselves in part from illegal activities. The mean for number of years of school completed was 12 (SD=2). Subjects mostly lived in either their own house or apartment (n=37) or a friend's house or apartment (n=39), but others listed that they resided in a rooming or boarding house (n=13), a shelter (n=9) or on the streets (n=1). However, 70% reported that they had only been at their current residence for 24 weeks, indicating a high degree of mobility. In addition, 66 subjects reported that they did not care for or support any children, 17 cared for one child, 9 cared for 2 children, and the remaining 6 cared for between 3 and 9 children.

Drug Use Characteristics of the Sample

In the context of the personality interview, subjects were asked to say whether they were high on drugs at that moment and to subjectively rate the degree of their high from 0-10, where 0 meant they were not high at all and 10 was the highest they had ever been. Forty-eight subjects said they were high during the interview, 17 said they were not high at all (0 or 1), 14 rated themselves a 2 or 3, while 17 others rated themselves a 4-7.

Since the mean age of the sample was 35.24 and the mean

of the sample for age of first injection was 21.31 (SD=6.7), subjects had been injecting on the average for approximately 14 years. On average, subjects reported currently injecting once a day, though all IVDUs reported 3 or more drugs of abuse, and are accurately described as poly-drug abusers. Level or severity of addiction was not determined, except as a personality measure of drug dependence on the Millon Clinical Multiaxial Inventory - II (MCMI-II), where it was found that the sample as a whole scored significantly within the pathological range (BR=85.7, SD=16.6: BR>75 falls within the pathological range). When asked whether they preferred heroin or cocaine, 74 subjects said they preferred heroin and 25 said they preferred cocaine, though a majority use both. While 74% said they had at one time in their lives been daily drinkers, only 16% said they were presently drinking daily, though as many as 21% more said they drank between 2-6 times a week. Forty-three percent of the sample fell within the pathological range on the MCMI-II personality measure for alcohol dependence (BR>75).

Formal Substance Abuse Treatment & Prison Experiences

Although subjects selected for the present study are often termed "non-treatment seekers" and were not currently in treatment for drugs or alcohol related difficulties, the sample as a whole reported they had been in treatment for a total of 33 weeks or 4/5 of a year within the last 5 years.

Of this time in treatment, three formal substance abuse programs were clearly preferred or most frequently utilized: opiate detoxification, residential, and methodone maintenance (in order of preference).

52% of the sample population had had no prison experience within the last 5 years, despite their being engaged in illegal activities to obtain drugs. 10% spent up to 10 weeks in prison or jail, 15% spent from 12 weeks to a year and 23% spent from 1 to almost 4.9 years in prison within the last 5 years. For the prison-experienced population, only 15 subjects elected drug treatment while incarcerated.

Measures. The AIDS Initial Assessment is a structured interview questionnaire (AIA), developed by the National Institute on Drug Abuse (December, 1988), that was used to obtain baseline measures on variables that pertain to risk for AIDS. The three experimental groups used in the design of this study have been defined by high, intermediate and low needle-use risk status, which was based on a composite of several, self-reported needle-use behaviors on the AIA. In total, the AIA is designed to assess demographic characteristics, history of drug (and poly-substance) use, severity of current drug use, needle use behavior, sexual practices, substance abuse treatment history, health status, AIDS knowledge and HIV testing experience.

Initial data is available which establishes preliminary validation for the AIA self-report. Findings reported by Myers et al. (1989), strongly suggest that risk status, independently tested for needle-use practices and sexual behavior, corresponds to self-reported physician diagnosed rates of hepatitis and syphilis. Test/retest reliability analysis found a 96.8% agreement.

Personality Measures. The following battery of personality measures was administered to each subject with an average administration time of 2 hours. The five measures are being used to see whether behavioral risk status has an effect on personality functioning. The personality measures that comprise the battery include selected TAT cards assessed on the Westen Object Relations and Social Cognition Scale; the Loevinger Sentence Completion Test; the Zuckerman Sensation Seeking Scale; the Millon Clinical Multiaxial Inventory - II; and the Depressive Experiences Questionnaire.

Westen Object Relations & Social Cognition Scale. Westen et al. (1985 & 1990) have developed a system of measurement to assess aspects of individual differences in the way people internally represent interpersonal relationships (self and object representations) and process social information. This approach integrates features of psychoanalytic object relations theory and research in the area of social cognition, specifically related to the pathways of social information processing (Westen, 1988).

The Westen scale will be used specifically to determine individual variations in: 1) 'complexity of representations of people', 2) 'affect tone of relationship paradigms', 3) 'capacity for emotional investment in relationships and morals', and 4) 'understanding social causality', as these relate to relative capacity to reduce risk of exposure to AIDS.

Four object relational dimensions (the complete scale) will be assessed at two arousal levels which correspond to TAT cards designated either "relatively neutral" (cards 1, 2, 4, 5) or "relatively evocative of negative affect" (cards 3BM, 13MF, 15). The cards chosen correspond to those employed by Westen et al. (1989). The practice of comparing responses according to level of anticipated arousal for a given card has been widely used, when TAT scales are employed (Keller, 1989; Westen et al., 1989).

Several methods for scoring narrative data have been devised by Westen (1985). The procedures for scoring TAT stories will be employed in the present study. The Thematic Apperception Test or TAT is a projective measure in which subjects are asked to create a story based on ambiguous social scenes depicted on a series of cards. Subjects are instructed to make up a story which includes what led up to the scene, what is currently happening, its outcome, and what the characters are thinking and feeling. Thus,

narrative data is generated and scored according to the internal representations imposed or constructed by the subject, as meaning is ascribed to each 'interpretable' social interaction.

Four dimensions or themes will be scored using criteria for TAT coding of object relations/social cognition. These dimensions are conceived of as "cognitive and affective processes mediating interpersonal functioning" and with the exception of affect-tone of relationship paradigms, are viewed as "developmental aspects of object relations and social cognition" (Westen et al, 1988). Each scale is scored from a level 1 (ex. poor or immature) response to a level 5 (ex. good or mature) response, designating lowest-level to highest-level, respectively. Ratings of these dimensions have been found to be reliable when made by graduate student coders with Pearson's R correlation coefficients ranging from .73 to .95.

'Complexity of representations of people' is thought to be an outgrowth of developmental maturation, whereby young children progress sequentially from low levels of differentiation in their cognitive and affective experience and representation of self and others, to higher levels of complexity and integration as they approach adulthood. At level 1 of the scale, subjects are virtually unable to distinguish their own from others points of view. At an intermediate level, simple, superficial characteristics

starkly differentiate people. At its highest level, the scale portrays individuals capable of a complex, comprehensive grasp of "the nature, expression, and context of personality and subjective experience" (p.7, Westen et al, 1989).

'Affect tone of relationship paradigms' measures interpersonal expectancies which range from globally negative to affectively rich and varied. It is presumed to be a relatively stable, stylistic difference in an individual's object relations and is not thought to change with degree of maturity. The scale has been used to distinguish presence of psychopathology in a comparison of normal and clinical samples (Westen et al., in press). The lowest level of the scale indicates a subject's anticipation that relationships will be destructive, profoundly hostile or malevolent. At the other extreme, the highest level rating is scored for subjects who generally assume that relationships will be not only benign but personally enhancing.

The TAT dimension that measures 'capacity for emotional investment in relationships and morals' designates a three stage developmental progression; beginning with others perceived wholly as need-gratifying means for comfort and security, to other people, relationships and ideals perceived as ends in themselves, to the point of mature

object relations in which others are valued for their unique personal qualities and social conventions and standards are subjectively evaluated. The inclusion of transitional stages makes this a five-level scale.

The dimension, 'understanding social causality', measures developmental differences in the way people understand social interactions based on logic, complexity, internality (i.e., attention to emotional and psychological process) and accuracy. Low levels on the scale represent causality that is illogical or alogical, confused or inappropriate, or without associations to interpersonal characteristics. At intermediate levels, attributions are accurate though simple and at high levels, individuals can grasp complex psychological events including the interrelationship of thoughts, feelings and actions.

For the purpose of the present study a selection of seven TAT cards will be made and administered to each subject. The cards selected for this battery will be 1, 2, 3BM, 4, 5, 15 and 13MF (recommended by Westen, personal communication). Since these cards differ in their affective evocativeness, the order of card presentation is thought to be a potential bias unless controlled. Thus, card presentation will alternate neutral with evocative cards to reduce order effects. Responses will be scored according to procedures outlined in the Westen TAT manual (Westen et al., 1988).

Millon Clinical Multiaxial Inventory - II. (MCMI-II).

The Millon Clinical Multiaxial Inventory - II (MCMI-II) (Millon, 1987) was employed in the present study 1) to assess psychiatric clinical syndromes, as well as both personality style and disorders; and 2) to measure the effect of risk status on personality functioning. The inventory is a self-report (175 items) developed to be consonant with Axis I syndromes and Axis II personality disorder classifications of the Diagnostic and Statistical Manual of Mental Disorders - R (DSM-III-R; American Psychiatric Association, 1987). Patients' "true" or "false" responses are sorted according to twenty-two clinical scales and three validity indices, used to correct for patients' inclinations to deny or to accentuate psycholpathology; ten scales parallel Axis II personality disorders, three scales parallel the severe personality disturbances and the remaining nine scales fix Axis I diagnoses. In this manner, enduring styles of personality functioning appear on a continuum of severity, from normal to psychopathological levels. Therefore, premorbid personality functioning can be considered along side acute clinical features which may also be present. The instrument employs continuous measures on all its scales, with the advantage that not only can diagnoses be made but severity ratings may also be obtained.

Reliable separation of personality style from acute symptoms is achieved by further dividing the twenty-five

scales into five categories: 1) Modifier Indices (correction scales): Disclosure, Desirability, Debasement. 2) Clinical Personality Pattern scales: Schizoid, Avoidant, Dependent, Histrionic, Narcissistic, Antisocial, Agressive/Sadistic, Compulsive, Passive-Agressive, Self-Defeating. 3) Severe Personality Pathology scales: Schizotypal, Borderline, Paranoid. 4) Clinical Syndrome scales: Anxiety Disorder, Somatoform Disorder, Bipolar: Manic Disorder, Dysthymic Disorder, Alcohol Dependence, Drug Dependence. 5) Severe Clinical Syndrome scales: Thought Disorder, Major Depression, Delusional Disorder. Although the inventory diagnoses may be completed by a clinician, computer generated scores will be used in the present study due to the complexity of the item weighting system, the extended series of validity modifications for the twenty-five separate scales and to reduce error.

Loevinger Sentence Completion Test, (SCT). To assess level of ego development for each subject, the Loevinger Sentence Completion Test will be administered. This measure grew out of Loevinger's theoretical assumptions about ego development, through which she came to conceive of the individual as passing through a hierarchically arranged, invariant sequence of developmental stages, as the ego becomes ever more differentiated, complex and integrated. Her operating assumption is, that at any given point in time, the ego's level of maturity can be measured in terms

of a highest functional capability to adapt and make sense of experience.

The Loevinger Sentence Completion Test assesses ego development along a continuum of 10 discrete stages, ranging from presocial and impulsive, undifferentiated, primitive stages to ones of autonomy and integration. Later stages reflect cognitive complexity and a highly differentiated perception of self and of the relationship of one's thoughts and feelings to others (Loevinger, 1976). Each stage is characterized by various traits uniquely determining its style and dominant mode of perception. A description of each stage follows.

The first stage (I-1) defined by Loevinger is the Presocial Level which begins at birth. This stage is initially characterized by a virtually egoless, prelinguistic state until the beginning emergence of the self and its differentiation from the surrounding environment. Object constancy is initiated and some level of internal object constancy is achieved before the second stage is said to begin, the Symbiotic Level. While the baby exists in a symbiotic relationship with the mother throughout this next stage, language acquisition facilitates the advancement of self-differentiation. Progressing to the next stage, the Impulsive Level (I-2), the infant's impulses and the environmental response to the expression of those impulses help to establish a growing sense of identity. The

infant is often experienced as demanding and dependent because of its preoccupation with bodily impulses and needs. The infant has no sense of temporal differences since he perceives only the present. Thus, its grasp of causation is limited, solely understood in simple, concrete terms.

In Loevinger's schema, the Self-Protective Level (Delta) follows next. This stage is highlighted by multiple concerns focusing on self-protection. A guarded, vulnerable stance is typical of this level of development. Primary concerns revolve around the themes of control, domination and deception since internalization of social rules and regulations has occurred and these are being tested.

The Conformist Level ((I-3), based upon an identification with group norms, follows next. It is characterized by behavior motivated by the need for security which in turn is derived from a sense of belonging, compliance with the group's rules and the avoidance of disapproval. Moreover, rules are obeyed for their own sake; behavior is not judged by its consequences but by the extent to which it conforms to group norms. External behavior, appearance and reputation are more important to this individual than is inner life and the expression of individual differences is viewed as a threat to group cohesion.

At the next stage, the Conscientious Level (I-4), an

individual demonstrates the presence of adult conscience, that is, a concern for long-term goals, ideals, a sense of responsibility and differentiated self-criticism. Inner life is rich and varied and a sense of mutuality in relationships prevails.

The Autonomous Level (I-5) is attained when a person has the capacity to recognize and resolve internal conflict and sees that others are as complex and multifaceted. This individual can tolerate ambiguity, pursues the goals of self-fulfillment and, yet, views autonomy and emotional interdependency as complementary.

The highest level described by Loevinger is the Integrated Level (I-6). This stage signals the resolution and mastery of all conflicts in the previous stage. This highest level of ego development is rarely achieved since it is the complete consolidation of an individual's sense of identity.

The sentence completion test requires respondents to complete 36 sentence stems, according to standardized instructions on how to approach the form. The actual completion is done by the respondent with a pencil and is observed by a research assistant. The test is not timed and the subject is asked to write whatever comes to mind. Each stem or item is scored for ego level in accordance with guidelines in the Loevinger et al. manual (Loevinger,

Wessler and Redmore, 1970). To avoid a halo effect, each item is scored across all protocols before proceeding to the next. A Total Protocol Rating (TPR), or an overall ego development score, is derived for each subject according to Loevinger's ogive rules. A median interrater correlation of .86, in the determination of interrater reliability, was found by Loevinger and coworkers (Loevinger et al., 1970).

Sensation-Seeking Scale, (SSS). The sensation-seeking trait hypothesized by Zuckerman, Kolin, Price & Zoob (1964), is based on the construct of "optimal stimulation level". The scale's underlying theory suggests that what is optimal stimulation will vary considerably between individuals, ranging from the pursuit of complex and novel sensations derived from taking physical and social risks to the reduction of aversive stimulation. Originally tested among college students, the sensation-seeking scale distinguishes between those who seek to increase their level of arousal through stimulating activities (termed 'high sensation-seekers') and those who avoid or withdraw from such stimulation ('low sensation-seekers')(Zuckerman, 1971).

The Zuckerman Sensation-Seeking Scale (SSS - Form IV, 1971) is a self-report consisting of 72 forced-choice items in which a subject is asked to state which of two situations most describes their likes or the way they feel. These items load onto five moderately correlated factors (Zuckerman, et

al, 1980). The General (Gen) subscale is related to the other four scales and is made up of 22 items. The Thrill and Adventure Seeking (TAS) scale measures the desire to engage in physical activities involving speed or danger and has 14 items. The Experience Seeking scale (ES) has 18 items and measures the tendency to value experience for its own sake as reflected by exhibitionism in dress and behavior, association with unconventional people, drug use (marijuana and LSD) and a defiance of authority. The fourteen item Disinhibition scale measures the loss of inhibition and/or the need to differ from normative social standards and practices. Finally, the Boredom Susceptibility (BS) scale has 18 items and measures the dislike of repetition and predicatability and the need to seek out exciting people, variety and novelty.

Reliabilities for all factors, except the BS factor, were found to be satisfactory in two samples with coefficients generally obtained in the .70s and .80s (Zuckerman, 1971). Reliability for the BS factor with male subjects was .56 in a replication study, having dropped from .75. For females, the BS subscale dropped from .58 to .36.

Depressive Experiences Questionnaire, (DEQ). As opposed to assessing overt symptoms of depression, the Depressive Experiences Questionnaire (DEQ) measures common, life experiences of depressed individuals. Three stable factors have been identified: Dependency, Self-Criticism and

Efficacy. Dependency and Self-Criticism both correlate significantly with established, independent measures of depression, the former with neurovegetative signs of depression and the issues of orality and neediness, and the latter with issues related to loss of self-esteem and a guilt-oriented depressive style (Blatt, et al, 1976; Blatt, et al, 1984b). In the psychoanalytic literature, depressive issues revolving around orality, fears of abandonment, rejection and neglect has been labeled "anaclitic" as compared with an "introjective" depression focused around self-criticism, guilt and shame. The third factor, Efficacy, rates confidence in one's resources and/or capacities, but may under certain circumstances be related to a hypomanic denial of problems (Blatt et al., 1982). Since depression appears to be a central issue in opiate addiction (Woody & Blaine, 1979), the DEQ was used to distinguish subtypes of depressive experience.

Procedure. Subjects for the present study were recruited from among participants involved in an ongoing NIDA AIDS Demonstration Research grant. Individuals, who met the eligibility criteria, were invited by trained interview staff to complete a 2 hour personality assessment session for which they received $15. The study was explained to potential study subjects in the following manner (The present study, and in particular the explanation below, was subject to the Yale University Medical School Human

Investigations Committee approval):

"You are invited to participate in another part of our program. You will be asked to answer questions about how you feel and how you handle common situations in your life. For your participation in a 2 hour interview session, you will receive $15. Every study participant is asked the same questions and fills out the same forms. This study is completely confidential and you should also know that your name will not appear on any of the forms used. Instead, a study number will be assigned to all your paper work. You may choose not to answer specific questions or drop out of the study at any time, without affecting your standing with this project and without future loss or denial of services at any APT facility. At the end of this session, I will describe the study in greater detail. Would you like to participate?"

Selection of eligible subjects was made by trained staff from the various components (ex. Health Center, Mobile Health Van, Community Agency Outreach) of the NIDA Project, based on the reliability of responses to the initial AIA interview. In order to achieve sufficient statistical power to demonstrate significance at the .05 level, approximately 100 subjects were interviewed. Subject participation consisted of attendence at a second interview session, during which a personality assessment battery was administered. Benefits and potential liability of study participation were explained. Prior to actual administration of the measures, subjects gave their verbal consent to participate.

All interviews were conducted by a doctoral level clinical psychologist in training. The interviewer did not have to be blind to the subjects' risk status since four of

the measures were self reported and the TAT instructions were neutral and uniform across subjects. Most of the personality assessment interviews were conducted within 2 weeks of the AIA interview date. TAT cards were presented to subjects after the MCMI-II, after which the remaining measures were completed. TAT responses were audio-taped in order to assure accuracy of recall. Participants were given the following basic instruction for the TAT:

"I will be showing you some pictures. I would like you to look at these pictures and to tell a story about what you see. Include what is happening in the picture, what led up to it, and what happens or the outcome of the story. Also, say what the characters are thinking and feeling."

The TAT cards were alternated to control for order effects, according to their emotional evocativeness, so that high emotion cards were followed by low emotion cards. In addition, incomplete responses were followed up and the interviewer inquired about missing information to minimize biases that could have resulted from verbal productivity or increased motivation. This was also a way to further guarantee adequate material for the purpose of scoring.

Following the completion of TAT stories and the self-report measures, subjects were provided with a brief description of the study's purpose and were invited back at the study's completion to discuss more specific questions regarding its outcome.

The Construction of Three Experimental Groups. The AIDS Initial Assessment Questionnaire (AIA) administered to each study subject at the time of initial interview, provided the basis for distinguishing between subjects at three levels of risk-taking with respect to needle-use: those who were at high, intermediate and low behavioral risk status for HIV exposure. The three risk groups for the present study varied in size: High Risk, N=37; Intermediate Risk, N=22; Low Risk, N=40.

The method used to determine risk group status is based on a summary of risk variables that have been constructed into an index (Myers et al., 1989). A description of the index follows and is reproduced here (see Table 1) from the Myers' paper just cited.

"The questionnaire (AIA) contains sets of questions related to three primary aspects of needle-use practices: 1) the number of persons with whom the respondent shared needles; 2) injection with needles that had been used by other persons; and 3) the use of new or bleach-cleaned needles. Risk levels and scores assigned to each of the variables are as follows:

Insert Table 1 about here

TABLE 1

Needle Risk Index

Variable	Score	Definition
Number Persons	0	none (didn't share needles with anyone)
	1	shared needles with one person
	2	shared needles with two or more
Used Needle	0	didn't inject with used needle
	1	injected with used needle
New/clean	0	always injected with a new or bleach-cleaned needle
	1	always injected with a new or bleach-cleaned needle but shared cooker, cotton or rinse water with others
	2	did not always inject with a new or bleach-cleaned needle

To obtain a summary score of needle risk, each individual was first classified according to each of these variables and the sum of the three scores was obtained. A score of 0-1 = low risk, 2-3 = intermediate risk, and a score of 4-5 = high risk."

Preliminary data (Myers et al., 1989) indicates that when three risk categories are factored (i.e. low, intermediate and high) using AIA criteria and these are correlated with self-reported rates of physician-diagnosed hepatitis, statistical significance was found for the increasing percent of IVDUs who reported disease as the needle-use risk index rose from low to high (see Table 2,

p.6, Myers et al., 1989). Increased frequency of injection among those at high risk was a second hypothesis tested to determine the validity of these risk classifications. It, too, demonstrated that the frequency of injection rose consistently as risk classification increased from low, to intermediate, to high.

In addition, Snyder et al. (1989), using the needle-use and sexual practice behavior risk indices of Myers, found significant differences with respect to risk status between those who injected either cocaine or heroin exclusively. Reliability of the AIA was recently reported by Brown et al., (1989) following test/retest analysis. Overall reliability for 214 readministered AIAs resulted in a 96.8% agreement.

These reported results are encouraging because they provide a significant measure of validation and reliability both for the AIA itself as well as the categorical distinctions between high, intermediate, and low risk status differentiations.

Data Scoring. Three of the personality measures were computer scored (i.e., the MCMI-II, the DEQ, and the Sensation Seeking Scale). The Loevinger sentence completion test was scored by a doctoral level clinical psychologist in training, who had achieved a high reliability rating (Pearson r correlation, r=.88) with other raters on

published research (Luthar, In press).

Audiotaped TAT stories were professionally transcribed and the transcriber was blind to the hypotheses of the study and risk classification of subjects. TAT scoring was completed by four doctoral level clinical psychologists in training and a masters level rater, all of whom were trained by Drew Westen, Ph.D., the author of the TAT scoring procedure manual used here. To assure a reliable basis for calculating inter-rater agreement, 20% of the stories were double-scored. That is, four subjects' stories were scored by two raters for each batch of twenty. The remaining sixteen subjects' stories per batch of twenty were scored by the primary rater only. Reliability coefficients ranged from .81 for 'Affect Tone", to .80 for 'Complexity of Representations', to .77 for 'Social Causality', to .75 for 'Emotional Investment'. All raters were blind to subjects' risk group membership, subjects' responses on the self report questionnaires and the specific hypotheses of the study.

CHAPTER III

RESULTS

In this chapter the analyses performed to test the study hypotheses will be presented. Additionally, other relevant characteristics of the sample that resulted in significant between group differences will be reported. The results strongly confirm the validity of the needle-use index to classify intravenous drug users according to the level of their needle-use risk behaviors. When multivariate and/or correlational analyses were performed, significant group differences were found on indicies of needle-use behaviors, sexual risk behaviors, personality styles, severe personality disorder, clinical syndromes, severe clinical syndromes, health outcomes and drug use behaviors.

Data on 99 intravenous drug users were analyzed on the Yale Computer Center, New Haven, Connecticut, mainframe using the SAS statistical package. A needle-risk index was used to derive three unequal groups of IVDUs, whereby individuals' group status was defined according to summary scores on three risk-taking variables, as follows: High Risk, N=37; Intermediate Risk, N=22; Low Risk, N=40. Please note that due to missing values on 3 MCMI-II protocols, the MCMI-II analyses compare 96 subjects arrayed in the following distribution: High Risk, N=36; Intermediate Risk,

N=22; Low Risk, N=38. The inequality in group size was accounted for in the statistical analyses.

To compare between group differences on all dependent variables (ex. demographic, drug use, needle behaviors, sexual practices, health-related issues and personality measures) using risk group and subjects as the independent variables, a multivariate analysis of variance (MANOVA) for repeated measures was used. The model is subjects nested in risk. This type of analysis takes the usually heterogeneous correlations among the repeated measurements into account automatically, avoiding type I errors (i.e. false positive inferences). Practically speaking, this is equivalent to the more familiar repeated measures analysis of variance (RM ANOVA), corrected for correlated measures (Elkstrom et al., 1990).

Before examining the study hypotheses, demographic variables were compared. Analyses revealed that the groups did not differ significantly in age [$F(2,96)=.82$, $p=.44$]; nor in gender [$F(2,96)=.18$, $p=.84$]; nor in race [$F(2,96)=.16$, $p=.85$]. While no specific measure of socioeconomic status was used in the study, no significant between group differences were found on such variables as major source of income, type of current residence, length of time in current residence, educational background, and religious affiliation. A marginally significant difference ($p<.1$) was found for number of children supported by

subjects. The low risk group provided care and support for their children more often than parents in the other risk groups. On the basis of these analyses, it was decided not to use any of these variables as a covariate with risk group in the data analysis.

Hypothesis 1: It was expected that high risk takers would have the lowest scores on all the TAT scales (i.e. 'affect tone', 'social causality', 'complexity of representations', and 'emotional investment in relationships and morals') for both neutral and high arousal cards. A group main effect was also predicted for arousal level. TAT scales were analyzed using a separate MANOVA with arousal and risk as the independent variables. The results of this analysis found that the risk groups differed significantly on only two of the TAT dimensions: 'affect tone' [$F(2,96)=8.10$, $p=.0003$] and 'complexity of representations' [$F(2,96)=6.98$, $p=.001$]. An examination of the Tukey's studentized range test revealed that results were not in the expected direction for both significant dimensions. No differences were found between the risk groups on these dimensions with respect to arousal.

The results for the dimension 'affect tone' indicated that the intermediate risk group scored the highest ($\bar{X}=2.99$), with the high risk group ($\bar{X}=2.83$) and the low risk group ($\bar{X}=2.71$) scoring significantly ($p<.05$) lower. There

was no statistical difference between the low and the high risk groups on this dimension. The relation of risk group to affect tone is nonlinear, since the intermediate risk group had the highest mean of the three groups.

According to Westen's typology, these mean values fell between levels 2 and 3 for 'Affect-tone of Relationship Paradigms'. Level 2 is characterized by a view of people, "as hostile capricious, empty or distant but not as overwhelming. The person may feel tremendously alone. People are experienced as unpleasant or uncaring, but not primarily as threats to one's existence" (1990). At level 3, a person has "a range of affectively charged object representations/person schemas and interpersonal expectancies, though these are not primarily positive. People are seen as capable of loving and being loved, of caring and being cared for, but on balance social relations are evaluated as neutral or mixed" (1990).

Thus, on the basis of this analysis, it can be concluded that the low and high risk groups demonstrated greater levels of malevolent affect in comparison to the intermediate risk group. In fact, the intermediate risk group mean was higher than that reported by Westen et al. (1989) for a normal sample ($\bar{X}$=2.83). The low and high risk groups in this study scored higher than adult borderline mean values ($\bar{X}$=2.58) on affect tone reported elsewhere by Westen et al. (1990). Hospitalized adult borderlines appear

to expect greater malevolence from interpersonal interactions than do the community addicts in this sample.

The above results suggest on average, that the intermediate risk group has a significantly more benign and positive set of expectations with respect to interpersonal situations than the other two groups. In contrast, the low risk group appears to feel relationships are significantly more threatening and destructive. Surprisingly, the low risk group represents relationships as more hostile, empty and disappointing than even the high risk group, although there is no significant difference between the means for the two groups.

The results for the dimension 'complexity of representations' revealed that the low risk group scored ($\bar{X}$=2.65) significantly lower than both the intermediate ($\bar{X}$=2.81) and high risk ($\bar{X}$=2.86) groups. The intermediate and high risk groups did not differ statistically.

The mean values for the three risk groups fell between levels 2 and 3 for the dimension 'Complexity and Differentiation of Representations of People'. At level 2:

"the person sees people as clearly bounded, separate from the self and from each other, but without an elaborate sense of people's subjective states, motives, or enduring characteristics. The focus is largely on behaviors and momentary actions, rather than on the thoughts, feelings, or psychological processes that motivate or influence behavior. People are seen as primarily unidimensional, existing in situations rather than across situations. Where people are

understood as having enduring qualities, these are generally global, evaluative traits like 'nice' or 'mean'." (1990)

At level 3 of the scale:

"The person makes inferences about subjective states in addition to focussing on behavior. Understanding of other people's psychological processes and subjective experience does not, however, delve far beneath the surface. The person has ideas or 'theories' about other's enduring characteristics, but these intuitive theories are either unidimensional, overly general, or lacking subtlety. There is little sense that people could do things 'out of character' or experience psychological conflicts." (1990)

Therefore, it can be concluded on the basis of this analysis, that the intermediate and high risk groups have a significantly more developed capacity for complex, differentiated object representation than the low risk group. Risk group is positively related to this TAT dimension, such that as risk level increased from low to high so too did scores increase on a measure of complexity of representations.

In this sample, the intermediate and high risk groups scored at a level reported for borderline adults ($\bar{X}$=2.83) on this measure of complexity of representations (in Westen et al. 1990), while the low risk group here more closely resembled the performance of borderline adolescents ($\bar{X}$=2.54). All three risk groups though, exceeded the scores for normals ($\bar{X}$=2.39) (Westen et al. 1989) on this dimension. This finding is similar to that of Westen, who explains the

elevated scores on complexity of representations in the following manner: "borderlines may at times produce overly complex representations of people which are probably laced with malevolence and inaccurate attributions of motivation. .....their pathology may lead them to overattribute complex motives and traits to others in dynamically determined ways" (Westen et al. 1989, p.22).

The sample means for the four TAT dimensions are as follows: Affect Tone, $\bar{X}$=2.82; Social Causality, $\bar{X}$=2.39; Capacity for Emotional Investment, $\bar{X}$=2.07; Complexity of Representations, $\bar{X}$=2.75.

Hypothesis 2: It was expected that as risk group increased from low to intermediate to high, so too would scores on the 5 scales of sensation seeking increase in a linear fashion. Sensation seeking was measured by the Zuckerman sensation seeking scale. The results of the overall MANOVA found that the groups did not statistically differ with respect to sensation seeking. A correlational analysis was performed to test whether sensation seeking might be associated more specifically with the raw scores comprising the risk index. This procedure failed to yield significant results.

In contrast to the expectated results on the sensation seeking scale in addition to the lack of between group differences, the means for three of the scales indicated

that the intermediate risk group was somewhat higher on sensation seeking than were the other two groups. This was observed for the General Scale, the Thrill and Adventure Seeking Scale, and the Disinhibition Scale. Means for the other two scales, Experience Seeking and Boredom Susceptibility, were equivalent. The differences obtained for the group means suggest a possible nonlinear relation between risk group and three aspects of the total construct of sensation seeking, yet differences were nonsignificant. The lack of significant between group results precludes this conclusion.

The mean values of the individual five scales taken for the sample as a whole fell close to all the scores reported by Kosten and Rounsaville (in press) for both opiate addicts and their drug dependent siblings. If anything, this community sample is closer to the non-treatment seeking siblings on the sensation seeking scales than to the treatment seeking addicts, though as Kosten and Rounsaville found, no significant differences would be likely to emerge here either.

Hypothesis 3a: It was expected that the risk groups would differ significantly with respect to severe personality disorder on the schizotypal, borderline or paranoid MCMI-II scales. It was presumed that differences would be related in a linear fashion, such that as risk group increased from low to high, so too would the degree of

severe personality disorder increase. The result of the overall MANOVA indicated that between group differences attained significance for borderline personality disorder alone [F(2,93)=4.11, p=.02].

An examination of the least square means (see Table 2 below) revealed that the intermediate (BR=85.5) and high risk (BR=81.7) groups fell in the pathological range of the scale (i.e. BR>74). The low risk group scored significantly lower, in the nonpathological range (BR=72.7). It is of note, that the relation of risk group to borderline personality disorder is nonlinear, since the intermediate risk group had the highest mean of the three groups. While the high risk group was expected to score higher than the intermediate risk group, the intermediate and high risk groups did not differ statistically.

Therefore, it can be concluded on the basis of these analyses, that intermediate and high risk takers as a group have a severe personality disorder, characterized by borderline psychopathology, while the low risk takers do not as a group manifest any severe personality disorder. The hypothesis that severe personality disorder would significantly differ between groups was borne out however, the exact manifestation of the difference was not predicted. The high risk group did not score higher than the intermediate risk group as expected.

Insert Table 2 about here

TABLE 2

Least Squares Means: Borderline Personality Disorder
By Risk Group

		Low	Intermediate	High
Low	($\bar{X}$=72.7)	.	0.0099**	0.0350*
Int	($\bar{X}$=85.5)	0.0099**	.	0.4447
High	($\bar{X}$=81.7)	0.0350*	0.4447	.

* p<0.05
** p<0.01

Hypothesis 3b: It was expected that the risk groups would differ significantly on measures of the MCMI-II clinical syndromes (anxiety disorder, somatoform disorder, bipolar: manic disorder, dysthymic disorder, alcohol dependence, and drug dependence) and that differences would be related in a linear fashion, so that as risk increased so too would severity of the clinical syndrome. The results of an overall MANOVA indicated that between group differences on MCMI-II clinical syndromes attained significance on two scales, anxiety disorder [F(2,93)=3.18, p=.046] and dysthymic disorder [F(2,93)=3.76, p=.03]. This supported the hypothesis that risk groups are significantly different with

respect to measures of clinical syndromes however, the relatively low scores on both significant scales for the high risk group, relative to the intermediate risk group it was expected to exceed.

An examination of the least squares means (see Table 3 below) revealed that the intermediate risk group fell precisely at the lowest point of the pathological range (BR=74.5) for anxiety disorder, with the low risk group scoring significantly ($p<.05$) lower in the nonpathological range. The high risk group scored higher (BR=63.3) than the low risk group (BR=56.5) and lower than the intermediate risk group. However, these differences were nonsignificant.

Therefore, it can be concluded on the basis of these analyses, that the intermediate group has an anxiety disorder in contrast to the other two risk groups who do not, though only the low risk group was found to be statistically different than the high-scoring intermediate group. The absence of anxiety in the high risk group was not predicted and reveals that risk group and anxiety are not related in a linear fashion.

Insert Table 3 about here

TABLE 3

Least Squares Means: Anxiety Disorder
By Risk Group

	Low	Intermediate	High
Low ($\bar{X}$=56.5)	.	0.0134*	0.2788
Int ($\bar{X}$=74.5)	0.0134*	.	0.1220
High ($\bar{X}$=63.3)	0.2788	0.1220	.

* $p<0.05$

An examination of the least squares means (see Table 4 below) revealed that the intermediate risk group fell within the pathological range for the clinical syndrome of dysthymic disorder (BR=75.8), with the low risk group scoring significantly lower ($p<.01$) in the nonpathological range of the scale (BR=56.7). The high risk group (BR=67.8) was marginally significantly higher ($p<.1$) than the low risk group, and also did not score within the pathological range of the scale.

Therefore, it can be concluded on the basis of these analyses, that the intermediate risk group has dysthymic disorder, that the high risk group might be said to have a vulnerability to this disorder, and that the low risk group is not dysthymic. The fact that the high risk group did not score within the pathological range was not predicted and

indicates that anxiety and risk group are not related in a linear fashion.

TABLE 4

Least Squares Means: Dysthymic Disorder
By Risk Group

	Low	Intermediate	High
Low ($\bar{X}$=56.7)	.	0.0096**	0.0789*
Int ($\bar{X}$=75.8)	0.0096**	.	0.2775
High ($\bar{X}$=67.8)	0.0789*	0.2775	.

* p<0.1, marginal significance
** p<0.01

Hypothesis 3c: It was expected that risk groups would differ on MCMI-II measures of severe clinical syndromes (i.e. thought disorder, major depression, and delusional disorder), such that as risk increased so too would the severity of the severe clinical syndrome increase. The results of the overall MANOVA revealed that the only scale to attain a level of significance was major depression [F(2,93)=5.22, p=.0071]. Though the intermediate group was significantly (p<.05) higher than both the high (BR=55.8) and low risk (BR=49.2) groups, the scale score (BR=66.6) fell short of the required BR=75 which determines the beginning of the pathological range. The score indicates the intermediate group's vulnerability to major depression, a

vulnerability that is not shared with the other two groups. This result confirms the general hypothesis that risk groups would differ on a measure of severe clinical syndromes however, it was expected that the high risk group would score higher not lower than the intermediate group.

An examination of the least squares means (see Table 5 below) revealed a nonlinear relation of risk group to one of the MCMI-II measures of severe clinical syndromes, major depression. Again, it was not expected that the high risk group would be free of major depression, when the intermediate group showed such a strong vulnerability to this type of symptomatology.

Therefore, it can be concluded on the basis of these analyses, that the intermediate group has a strong vulnerability to major depression, which was not manifested by the other two risk groups.

Insert Table 5 about here

TABLE 5

Least Squares Means: Major Depression
By Risk Group

	Low	Intermediate	High
Low ($\bar{X}$=49.2)	.	0.0017**	0.1601
Int ($\bar{X}$=66.6)	0.0017**	.	0.0504*
High ($\bar{X}$=55.8)	0.1601	0.0504*	.

* p<0.05
** p<0.005

Hypothesis 4: It was expected that risk groups would differ significantly on the MCMI-II personality disorder of antisocial personality, such that as risk increased so too would the severity of the personality disorder. The results of the overall MANOVA did not reveal significant between group differences (p=.14). However, since antisocial personality diagnosis was found to be very significantly correlated with risk-taking among IVDUs in a previous study, the data was further analyzed. Instead of using the risk index which lumps two raw scores together to form one risk level, the raw scores themselves were used (i.e. 0-5) as the continuous independent variable in a correlational analysis. This procedure is preferable when the focus is exclusively on a specific data pattern, since power and sensitivity are enhanced. The results of the correlational analysis were significant (p<.05).

Therefore, it can be concluded on the basis of these analyses, that risk level (0-5) is significantly and positively related to MCMI-II antisocial personality disorder. In other words, those at greatest risk of spreading HIV have more severe antisocial psychopathology, while those at minimal HIV risk are not severely antisocial.

Means for these groups were in the predicted direction. When the risk groups are compared, it can be said that the low risk group (BR=81.5) is characterized by antisocial personality traits and that the intermediate (BR=89.8) and high risk (BR=90.0) groups evince more severe antisocial personality disorder. Nonetheless, the specific hypothesis that risk groups would significantly differ according to the severity of antisocial personality disorder was not supported.

Hypothesis 5: This hypothesis was concerned with differences between the risk groups on level of ego development, as measured by the Loevinger sentence completion test. It was expected that as risk group increased from low to high that Loevinger scores would decrease. In this manner, high risk group status would be associated with the lowest ego development scores, etc. The results of an overall MANOVA with risk group as the independent variable revealed that there were no significant differences between the risk groups on total protocol

ratings (TPR) for this measure of ego development. A correlational analysis failed to yield a significant association between the raw scores of risk and ego development. The hypothesis was not supported.

Although the within group variation differed, overall group means were virtually identical, falling between the Self-Protective and the Conformist stages. This finding conforms exactly to what has been reported for treatment seeking opiate addicts (Wilber et al. 1982). As reported by Wilber, this level is one full stage lower than means found in other non-clinical populations.

The majority of IVDUs in this sample were found to be functioning at one of three levels: Delta-3 (N=19), the transitional stage between Self-Protective (I-2) and Conformist (I-3), where interpersonal relationships are exploitive in nature and self-concern is preeminent; Conformist (N=34), where behavior is motivated by a need for security defined by an adherence to external standards and guidelines of the group, and acceptance by others is a crucial component of self-definition; and the second transitional stage (I-3/4) (N=27), where an individual begins to see themselves as a source of standards and judgement, and is developing for the first time a self-critical awareness.

Thus, approximately a third of this sample relies on

internalized standards to guide their behavior and are in the early phases of developing a capacity for self-criticism. Only five individuals scored at the Conscientious (I-4) stage that is reflective of fully adult characteristics: to be guided by conscience, long-term goals and ideals, a sense of responsibility and to have a differentiated capacity for self-criticism.

Hypothesis 6: It was expected that significant differences would emerge between the risk groups on the Depressive Experiences Questionnaire (DEQ), such that the high risk group would be associated with the highest scores on Factor 1, the dependency scale, and that the low risk group would be associated with the highest scores on Factor 2, the self-criticism scale. The intermediate group was therefore expected to fall in a mid-range with respect to both scales. The results of an overall MANOVA revealed that there was a significant between group difference [$F(2,96)=3.45$, $p<.05$] for only Factor 1, the dependency scale, but not in the expected direction.

An examination of the least squares means (see Table 6 below) revealed that the intermediate group (-.31) scored significantly higher on the dependency factor than both the high (-.73) and low risk (-.85) groups. This was an unexpected result from the standpoint of the high risk group which was predicted to have scored higher on dependency than the intermediate group and lower on self-criticism. Thus,

there appears to be a nonlinear relation between risk group and the dependency factor of the DEQ. With the exception of the intermediate risk group's high score, the high and low risk groups' scores were similar to those dependency scores reported for treatment seeking opiate addicts and polydrug abusers (Blatt et al., 1984).

A recent paper (Zuroff et al., 1990) which reports newly assessed norms for the DEQ, suggests that a DEQ Factor 1 score like that of the intermediate group falls within the range expected for a non-clinical population, illustrative of a normal need and capacity to allow dependence. Any interpretation of this finding however, must consider the meaning of this degree of dependency in a community sample of IV drug users. By contrast, the significantly lower scores on dependency, for high and low risk groups, indicate a significant reaction against or away from dependency that is characteristic of counterdependent, or counterphobic responses to dependent longings.

Insert Table 6 about here

TABLE 6

Least Squares Means: Factor 1 - Dependency
By Risk Group

	Low	Intermediate	High
Low ($\bar{X}$= -0.85)	.	0.0113*	0.5264
Int ($\bar{X}$= -0.31)	0.0113*	.	0.0473*
High ($\bar{X}$= -0.73)	0.5264	0.0473*	.

* p<0.05

Unlike the results of a comparison between opiate and polydrug treatment seekers (Blatt et al., 1984b), where self-criticism was strongly associated with the opiate abusing group, the present analyses found that there were no statistically significant differences between risk groups for this factor. A mean of .626 for the entire sample suggests that as a group, this community sample of IVDUs is high on the self-criticism factor, though lower than treatment seeking opiate addicts .902 studied by Blatt. This difference in self-criticism appears to be correlated with the increased rates of depression associated with treatment seeking drug abusers. When the means for the self-criticism factor are compared, the low risk group was found to be the lowest (.501), the high risk group scored next highest (.674) and the intermediate group scored the highest (.774). While no conclusive statement can be made, this does suggest

a nonlinear relation of risk group to self-criticism, and is moreover, highly consistent with a pattern of significantly elevated psychopathology found in the intermediate group.

The final DEQ Factor 3, efficacy, also showed no significant between group differences. The mean for the sample was -.162, although the low risk group described themselves as the least efficacious (-.280), the intermediate group felt somewhat more socially competent (-.096), and the high risk group described themselves as relatively effective (-.072). Though no conclusions can be made regarding efficacy, this suggests a linear association between risk group and a sense of social agency, wherein the higher the risk the greater is the sense of effectiveness.

MCMI-II Profile: A clinician who employs the MCMI-II is instructed to discuss the highest 3 scales for personality disorders as the salient cluster of personality characteristics which can be said to typify an individual's pattern of functioning, especially when there are more than 3 scales which exceed BR>74, in the pathological range. When this sample's means are viewed for the various scales, as if these were the scores of a single person, a modal personality of the group is described. The sample scored within the pathological range on six MCMI-II scales. Personality style was typified by antisocial (BR=86.6), passive-aggressive (BR=82.1), and aggressive-sadistic (BR=77.5) traits, and was also high on narcissistic

personality disorder (BR=77). The group has a borderline (BR=79) personality disorder, when severe personality disorders were considered, and scored high on the drug dependent scale (BR=85.7) for an Axis I clinical syndrome.

Validity Index: No specific hypothesis was made concerning the possible results on the validity scales however, when they too were analyzed in the overall MANOVA, a significant difference on the Debasement scale was found for the three risk groups. It also conforms to the general pattern of elevated psychopathology exemplified for the intermediate risk group, and suggests a tendency for these individuals to accentuate or play up their symptomatology or deviance in a self-deprecating manner. The mean on this scale for the intermediate group was BR=73, which is just below the pathological range. The high risk (BR=62) and low risk (BR=57) groups scored significantly lower ($p<.05$) and marginally significantly lower ($p=.0569$), respectively.

When a correlational analysis was performed with the raw scores comprising the needle-risk index, the Disclosure scale was found to be significantly associated with risk ($p<.05$). It was found that as risk increased from low to high values, that is from 0 to 5, scores on the disclosure scale also increased. This suggests that the lower the risk score the greater is the tendency to be "reticent, equivocal and secretive" (Millon, 1987), that is in contrast to the

higher risk scores which were associated with a response style thought to be "unreserved, guileless or free-spoken". Millon (1987) found that the three scales covary, such that high disclosers were also high on the debasement scale. The results for this sample deviate from that linear relation in two ways, because the high risk group was found to be significantly lower than the intermediate risk group on the debasement scale and low-disclosers were not found to be any more influenced by a desire to make a good impression than anyone else. Thus, for the high risk group, high disclosure means something other than openness with respect to describing symptomatology or accentuating problems. It may instead reflect an absence of self-awareness, a type of neutrality or carelessness about the impression they make.

Risk variables. Additional significant findings of the study will next be presented. The three variables which are summed in order to establish risk level were also analyzed in the overall MANOVA and all reached a level of significance ($p=.0001$). The results on the needle-sharing variable showed that risk group predicted the number of sharing partners, such that low risk IVDUs do not share needles, intermediate risk-takers share with only one other partner and high risk-takers share needles with two or more partners. For the variable concerned with using used needles, the high risk group was found to use used needles significantly more than both the low and intermediate

groups. When the variable was further broken down, it became evident that the high risk group used shooting galleries and dealer's houses to shoot drugs (ex. less than half the time), and the other two groups as a rule did not. An analysis of the final variable concerned with the use of new and bleach-cleaned needles revealed that risk group also predicted needle hygiene, such that the low risk group always used new or bleach-cleaned needles, the intermediate group always used new or bleach-cleaned needles but shared other drug paraphrenalia capable of viral transmission (i.e. cooker, cotton and rinse water), and the high risk group did not either always use new needles or bleach-clean their needles.

These significant findings support the valid discrimination of the three risk groups according to needle-risk behaviors and additionally show the linear relation of the three groups. Thus, as the risk group goes from low to intermediate to high, so too do the specific behaviors increase from low to high risk in a stepwise progression.

The three groups were also found to be significantly different with respect to sexual risk-taking behaviors (see Myers et al., 1989). When the risk groups were compared according to the number of total sex partners within the last 6 months, the low risk group had an average of almost 2 partners, the intermediate risk group had an average of slightly over 3 partners and the high risk group was found

to have almost 7 different sexual partners. Only the high risk and low risk groups reached a level of statistically significant difference, though the relation of risk groups on this variable was linear. In addition, the low risk group had the lowest number of sexual partners who also injected drugs, significantly lower than the intermediate group which had significantly fewer IV drug-using sexual partners than the high risk group. When specific sexual practices were also considered, the risk groups differed significantly and marginally significantly on two indicators representing risk to others, insertive vaginal intercourse and insertive anal intercourse, respectively. In both cases, only the difference between high and low risk groups attained a level of significance or near significance.

When the sex risk index was used, the high and intermediate needle risk groups fell approximately midway between intermediate and high risk levels for sexual practices, and the low risk group was significantly lower, midway between the low and intermediate risk levels for sexual practices. Thus, low risk needle-users engage in somewhat more risky behavior in the area of sexual practices compared to their consistent precautions regarding needles. This finding coincides with the many studies (see, for example, Friedman et al., 1987) of behavior change among IVDUs which suggest that sexual risk is more difficult to eliminate or to reduce than needle risk behaviors.

The exchange of sex for money and sex for drugs was not an overly common practice among this sample. However, the high risk group was significantly ($p<.05$) more likely to engage in both behaviors than the low risk group. The high risk group was marginally significantly ($p<.1$) higher on rates of exchanging sex for money and significantly ($p<.05$) more likely to exchange sex for drugs than was the intermediate risk group. The relationship of risk group to these two variables followed a linear pattern again, with high risk group status associated with riskiest behaviors.

As part of the AIDS Initial Assessment Questionnaire, IVDUs are asked to respond 'true' or 'false' to an AIDS information test. The test is comprised of 16 questions and the mean for the sample as a whole was 14 ($SD=1.5$). This corresponds to what might be expected of the sample given their approximately 12 years of schooling and parallels reports of similarly high knowledge scores for AIDS information. It is also true that if knowledge differences between addicts is to be more accurately assessed, a more discriminating measure must be developed.

In addition to AIDS information questions, IVDUs were asked to rate themselves according to their perception of the likelihood of developing AIDS, whether they had no chance, some chance, a high chance or a sure chance of developing AIDS. The low risk group felt they were at some risk while the intermediate and high risk group felt the

same at significantly higher risk ($p<.05$), midway on average between some chance and a high chance of developing AIDS. Although this might realistically be interpreted as an underestimation of risk for the high risk group, the more striking aspect of this finding is that high risk-takers do essentially recognize the danger they are putting themselves in while persisting in that behavior.

Health variables. The risk groups differed on three variables related to self-reported physician-diagnosed lifetime rates of disease. High risk-takers reported higher rates of hepatitis, with the intermediate risk-takers next and the low risk-takers the lowest rate. The linear relation of this variable only attained a level of significance ($p<.05$) between the high and low risk groups. The intermediate risk group reported significantly ($p<.05$) higher rates of genital herpes than the other two groups which reported no such health problem. And finally, the high risk group reported significantly higher rates of gonorrhea than did the other two groups which almost did not experience this disease at all. Health problems were experienced to a significantly greater degree by both the intermediate and high risk groups, which corresponds to the higher level of risk-taking behaviors both groups report. Although the reports of genital herpes were contrary to what may have been an a priori assumption, the incidence of both hepatitis and gonorrhea increased as the frequency of risk-

taking behaviors increased.

The seropositivity rate, or the frequency of those who tested HIV+, was found to be 9% for the sample. This by itself is a misleading figure, since of the 58% claiming to be HIV- many had not been retested when more recent high risk behavior post-dated the last HIV test. In addition, 8% of the sample were awaiting test results and 25% had not ever been tested. Many who do not want to be tested explain that they are afraid to find out, yet assume that they are infected and often do not change risky behavior. The known seropositive rate for IVDUs participating in the AIDS Outreach project is between 27 and approximately 35%. However, again, many refuse to be tested, an unknown percentage of whom would no doubt test positive. The low testing rate among this sample means that seropositivity can not be used as a reliable outcome measure.

Drug use variables. It is important to note, that the groups did not differ on variables assessing past (i.e. 6 months) or current drug injection frequency, age of first injection, whether or not the study subject was high during the interview, or on frequency and amount of alcohol consumption. Thus, the group differences on personality measures described above are not in a significant way associated with or attributable to differences on these variables.

Significant differences were found between the risk groups on the two drug use variables, frequency of cocaine injection and amount of cocaine used (i.e. regardless of route of administration). The high risk group ingested significantly ($p<.05$) more cocaine, more than one $10 bag a day compared to one $10 bag approximately one to three times a week, for the intermediate and low risk groups. The high risk group also injected cocaine significantly ($p<.05$) more frequently, approximately one time a day compared to less than one time a week, for the other two groups. Therefore, it may be that the popularity of cocaine among community addicts has altered the simple equation of cocaine use with higher HIV seroprevalence (Chaisson, et al., 1988). These results suggest that highest risk and the much increased likelihood of HIV infection is a product of differences in the magnitude of cocaine injection frequency and amount of cocaine consumed by any route, not whether or not the drug is used.

The injection practices of this community sample of IVDUs reflect national shifts (Myers et al., 1989), not so much away from heroin in this case, but toward the inclusion of cocaine as a major drug of injection. For the sample taken as a whole, 82% (N=81) reported heroin injection, 69% (N=68) reported cocaine injection, and 58% (N=57) reported injecting a combination of heroin and cocaine (referred to as a "speedball").

CHAPTER IV

Discussion

Summary of the General Findings:

Two consistent and striking general patterns resulted from the data analysis. 1) The needle-risk index, used to assess three levels of AIDS-risky behaviors, appears to be further validated because this study was able to replicate earlier findings (Myers et al., 1989). 2) In addition, differences between the three needle-risk groups (ex. low, intermediate and high) were found on personality scales that measure 'affect tone', 'complexity of representations', dependency (i.e. as a manifestation of depression), anxiety, dysthmia, major depression, antisocial personality disorder, and borderline personality disorder. This supports the general hypothesis that personality plays a role in the HIV risk-taking behavior of IVDUs.

First, the needle-risk index discriminated between three distinctly different groups in a meaningful fashion. High risk needle-use behaviors and high risk sexual practices were associated with the corresponding high risk group. For instance, behaviors such as sharing needles with two or more people, using shooting galleries and a dealer's house to shoot drugs, and not always using either new or

bleach-cleaned needles, were associated only with the high risk group. Drug use practices such as the frequency of cocaine injection as well as the overall amount of cocaine used daily were significantly elevated for those in the high risk group. In addition, the high risk group had the worst health outcomes. At the opposite end of the spectrum, the low risk group exhibited relatively protective behaviors that were low in risk on both needle risk and sex risk variables. Low risk takers did not share needles or other drug use paraphrenalia associated with HIV transmission. Similarly, their self-reported lifetime rates of disease reflect significantly greater caution and better health practices. The intermediate risk group was situated in the mid-range for these correlates of risk group status and exhibited behaviors that were significantly riskier than the low risk group and significantly less risky than the high risk group. Intermediate risk takers reported sharing needles with only one other person, used new or bleach-cleaned their needles but also stated that they shared drug paraphrenalia capable of HIV transmission. This series of findings strongly confirms the validity of the index by the replication of similar, previously reported results (Myers et al., 1989).

The utility of the needle-risk index was further demonstrated by its strong association with group differences on three personality measures. This study sought

to bring risk-taking behavior into the realm of psychological discourse by demonstrating that salient personality indicies may be usefully employed to help explain, treat and prevent HIV risk-taking. Until only recently, psychiatry and psychology have virtually ignored this dimension of the AIDS epidemic.

A consistent pattern which emerged from the data was the curvilinear relationship between each of the three personality measures (i.e. the TAT scales, the DEQ and the MCMI-II) and the three risk groups. The high risk group scored both significantly lower on four scales (i.e. on 'affect tone', DEQ dependency, major depression, and debasement) and marginally lower on three other personality scales (i.e. on dysthymia, anxiety, and borderline personality disorder) than the intermediate risk group, with the low risk group scoring significantly lower than the intermediate risk group on all 8 significant personality scales (i.e. including 'complexity of representations' and antisocial personality disorder). A pattern such as this with the middle group elevated was unexpected and conflicts with what one might logically assume based on a knowledge of psychopathology. In fact, research has extensively documented (Wilber et al. 1982; Rounsaville et al. 1983) the ways in which the greatest level of psychopathology is correlated with the poorest social, treatment and adaptational outcomes. HIV risk-taking behavior would seem,

at least on the surface, to follow a similar pattern. The performance of the high risk group on measures of underlying personality forces a critical reexamination of these pre hoc assumptions. The results indicate a more subtle and complex relationship between the variables that relate to risk-taking. In this study, the consistency with which the intermediate risk group scored more poorly than the other two groups on a variety of subscales suggests the existence of a specific constellation of personality differences between the groups.

Because the manifestation of the high risk group's psychopathology diverges from what was predicted, the results are perforce open to greater speculation and a variety of interpretations might be used in their explication. The interpretation presented below is an integration of the study's multiple findings, which is an attempt to fully incorporate personality, drug use, needle and sex risk and health outcomes into a unified statement of the different pathways of risk-taking.

In brief, it was found that the high risk group did not differ from the low risk group on measures of relatively low level of 'affect tone', relatively low anxiety, freedom from vulnerability to major depression, and a counterdependent response against dependent feelings. On the other hand, the high risk group resembled the intermediate risk group's relatively high scores on 'complexity of representations',

its high degree of antisociality, its meeting of criteria for severe borderline personality disorder, and a tendency to experience chronic dysthymia. Nevertheless, behaviorally, the high risk group manifests exaggerated and blatantly self-destructive practices, not exclusively limited to the extreme danger of HIV infection, but in a way that far exceeds the risks of exposure tolerated by the other two groups.

After this brief description of the general findings, I will next focus on the specific hypotheses addressed in the study.

Specific Findings:

Hypothesis 1: This hypothesis predicted a negative association between risk-taking level with four TAT dimensions of Object Relations and Social Cognition (i.e. 'affect tone', 'complexity of representations', 'social causality', and 'emotional investment in relationships and morals'), such that as risk increased from low to high, performance would decrease from relatively good (ex. higher scores) to poor (ex. lower scores). A main effect for arousal between the groups was also predicted. Group differences emerged on only two of the four TAT dimensions, 'affect tone' and 'complexity of representations'. In addition, no main effect for arousal was found between the risk groups.

This finding suggests that the intermediate risk group expects interpersonal relationships to be significantly more positive and benign than do the low and high risk groups. At this higher level, representations are mixed and more mildly negative in tone. The latter two groups demonstrated significantly more malevolent responses to the TAT cards, indicating their increased level of threat, a greater tendency toward profound loneliness or disappointment and anticipation of more hostile interpersonal interactions.

As will be discussed in detail below, the intermediate risk group appears to demonstrate the greatest interest and need for interpersonal affiliation. A high dependency score on the DEQ combined with higher mean values on this dimension of 'affect tone', reflect this group's belief in the relatively enriching qualities of mutually trusting, interdependent relationships. In fact, the relation of risk group to the DEQ dependency factor parallels the association found between risk group and the dimension of 'affect tone'. The significantly low score of the low risk group in comparison to the intermediate risk group was unexpected. However, the significantly low score for the high risk group was predicted. Thus, it appears that counterdependency (i.e. as determined by a low DEQ dependency score) in this sample is associated with lower scores on 'affect tone', while dependency is associated with higher 'affect tone' scores. Counterdependency, or the need to sustain an exaggerated

sense of autonomy is related here to the need to defensively view others as a malevolent threat. If the rigidity of this defense can be judged on the basis of this score alone, it would appear that the low risk takers are the most rigidly defended and the most likely to perceive others as motivated by hostile intentions. Thus, the low risk takers, in certain respects appear to be the most isolative, the most rigidly defended, and the most fearful of others. This wary stance may serve a protective function with respect to HIV risk-taking.

The second significant TAT dimension was 'complexity of representations'. Here too the results were unexpected. Although in general, greater complexity of representations is consistent with higher levels of overall development in normative terms, malevolent affect may also drive the development of complex representations. Thus, borderline adults discussed in a study by Westen et al. (1989), had higher scores than normal adults on this dimension. That is, while pathology may drive the creation of elaborate representations which are often quite complex from a cognitive standpoint, they may also be inaccurate and distorted versions of reality. This appears to be true for the high and intermediate risk groups who scored significantly higher than the low risk group on this dimension. A high score for the intermediate risk group is however, somewhat less unexpected given their greater

interpersonal awareness. The significantly lower score for the low risk group was the least expected result on this dimension. However, the low risk group's wary, counterdependent stance, their emotional and behavioral constriction, as well as their relative absence of pathology may account for the significantly less differentiated object representations when compared to the other two groups.

In summary, it appears that for this sample of IV drug users, 'complexity of representations' is associated with the greatest degree of psychopathology (i.e. severely antisocial and borderline diagnosed groups) which may spur aspects of cognitive development namely, the complexity and differentiation of object representations. However, the dimension of 'complexity of representations' lacks sensitivity to malevolence or psychopathology and therefore is unable to distinguish between levels of accuracy and overattribution of motive. On the other hand, the dimension of affect tone demonstrates the capacity to register differences in levels of malevolent versus positive expectancies.

Hypothesis 2: This hypothesis predicted a positive association of risk-taking level with levels of sensation seeking. The expected positive association was not supported. The low, intermediate and high risk groups statistically resembled each other, although the means for

the groups differed somewhat on three of the five scales (the 'Gen', 'Tass', and 'Dis' scales). All three groups were relatively high on sensation seeking scales, similar to opiate treatment seekers and their drug abusing siblings, and in contrast to the low sensation seeking opiate probands' non-drug abusing siblings (Kosten & Rounsaville, In press). The sensation seeking measure, which was developed and standardized on college students, may lack the sensitivity required to differentiate between groups that are almost uniformly high sensation seekers. Therefore, the measure easily distinguishes between, for example, drug-using and non-drug-using populations, but fails to detect differences within an 'extreme' or clinical sample. Group differences found on other measures used in the study would seem to provide further support for this conclusion.

In conclusion, although the outward and measureable manifestations of sensation seeking are similar for all three groups, the underlying mechanism which drives sensation seeking may be different for each group. Thus risk-takers at all levels may generally be high sensation seekers but for qualitatively different intrapsychic reasons. The possible differences in the intrapsychic function of sensation seeking will be discussed below.

Hypothesis 3a: Hypotheses 3a, 3b, 3c and 4 were all tested using separate MCMI-II categories. This hypothesis was concerned with the relation of risk group status to the

presence of severe personality disorder. A significant positive correlation between risk group and severe personality disorder was expected. The intermediate and high risk groups were found to have a severe personality disturbance on the borderline scale of the MCMI-II. The low risk group scored significantly lower than the other two groups and did not score in the pathological range of the scale.

This is a dramatic finding which delineates an important division in the sample, since those who engage in substantial HIV risk-taking (i.e. intermediate and high risk-takers), approximately 60% of the sample (N=59), were also diagnosed on the MCMI-II with a severe disturbance of personality functioning, borderline personality disorder, BPD. Those without BPD were found to exhibit a low level of needle-risk behaviors (N=40).

In almost all typologies, borderline personality disorder is used to describe a complex and shifting array of symptoms, mood states, and functional levels. It is often this changeability in itself which is used as a diagnostic confirmation of the disorder. The severity of this disorder marks "an insidious and slow deterioration of the personality structure" (Millon, 1987), that is characterized by dysregulation of affects illustrated by the seemingly fragile and quick-changing nature of mood states. Millon

(1987) describes borderline individuals who characteristically "display a cognitive-affective ambivalence evident in simultaneous feelings of rage, love and guilt toward others."

At a glance, the literature on the mixed diagnosis of borderline personality disorder and intravenous drug use reveals that little is known about this particular aggregation of problems that might illuminate the differences between addicts with BPD as opposed to those with other personality disorders. For instance, there were no significant differences between addicts with borderline personality disorder and any other type of personality disorder reported by Kosten et al. (1989). In Kosten's study (1989), addicts with BPD demonstrated the most serious psychiatric needs (i.e. more depressive disorders and alcoholism, as measured by the Addiction Severity Index) of those with any personality disorder, however, when compared to addicts with no personality disorder. The relative absence of literature on borderline addicts may be due in part to the overgeneralization of two conceptions of the addict, as "sociopathic" and as "neurotic".

Focussing on addicts' sociopathy may result in an error in one of two directions; 1) an undue emphasis on either behavioral aspects of the diagnosis (ex. such as illegal activities in the DSM-III or DSM-III-R)) or 2) on the disturbance of "normal sentiments such as love and

attachment and the capacity to experience guilt" (Cleckley, 1976; Perry, 1990) which has labeled the sociopath as a cold, manipulative, invulnerable deviant. These formulations are both true to an extent and untrue, to the degree that they capture certain essential qualities of some portion of the sociopathic population. However, what has been missing until now is an overarching construct, rationale and tool to distinguish subtypes of sociopathic personality formation which employs a more inclusive set of diagnostic criteria (for example, behavioral and interpersonal orientation). A multidimensional model of personality, like that underlying the MCMI-II, helps to establish the meaningful subtypes of this and other disorders. As will be discussed below, addicts in the present study were found to be antisocial/borderline and antisocial/non-borderline; the borderline group was further split by subtypes.

Similarly, the "neurotic" addict may accurately apply to only a small segment of the addict population. According to that conception, a "modal" or average addict has been described, as primarily having "difficulties in interpersonal relationships and affect modulation", in the neurotic range (Blatt et al., 1984a), as opposed to the additional problems in thought organization and reality testing which describe borderline disturbances. In the present study, this description of a neurotic addict may only apply to the low risk group and, moreover, may describe

a relatively small portion of the addict community whose problems would generally appear farther down the continuum of severity.

The intermediate and high risk groups exist in a midrange between neurotic and psychotic difficulties, with serious problems relative to interpersonal functioning and mood regulation coupled with the potential to seriously regress. This lowest level of functioning is described by Millon, where "levels of consciousness occasionally blur and an easy flow occurs across boundaries that usually separate unrelated percepts, memories, and affects, all of which results in periodic dissolutions of what limited psychic order and cohesion is normally present."

Studies of opiate addict, treatment seeking (Rounsaville et al., 1982) and non-treatment seeking samples (Rounsaville & Kleber, 1985) found significantly lower rates of borderline pathology than what is reported here, even though to some extent addict samples have always included a percentage of those diagnosed with BPD. The high rate of borderline diagnosed subjects in this sample appears to be a direct result of the sample selection procedure. Compared with a chain referral technique used to identify subjects for a community sample, where severe personality disorder occurred in approximately 30% of the sample (Rounsaville & Kleber, 1985), the selection process used in the present study involved three stages. Subjects first self-selected by

agreeing to participate in the AIDS Outreach study. Secondly, subjects were selected by criteria for this personality study and based on needle-risk classification. Thirdly, subjects self-selected again by choosing to return or not for the personality interview. Therefore, a substantially less random distribution of the community addict population is represented here. Instead, subjects were basically selected to fill risk groups, which unknowingly increased the percentage of those with this disorder.

Since borderline psychopathology is often diagnosed using different sets of criteria across studies, some more stringent than others (Research Diagnostic Criteria, RDC, are particularly stringent; Spitzer et al., 1978)), it is possible that if different criteria had been used, the result may have been fewer subjects diagnosed as borderline in the current study. Regardless of the debate that might ensue over the essence of borderline psychopathology and the best means of its measurement, what is abundantly clear is that using uniform criteria for all 99 subjects in the present study, group differences strikingly emerged. Thus, the unstable and diffuse personality organization which is the criteria for MCMI-II borderline personality disorder, the major problems of affect and impulse regulation, and the uncertain self-image so characteristic of borderline functioning, are linked to a specific behavioral correlate,

namely the inability to act cautiously, exert control and protect self and others from the risk of HIV infection.

The implications of borderline psychopathology for HIV risk-taking behavior seem clear. The chaotic mercurial quality of the borderline's mood states, their volatile and explosive behaviors and the tendency toward inaccurate perceptions of reality lead to significantly greater levels of HIV risk-taking behavior. A general pattern of reactivity to internal states and interactions with others, may compromise their ability to successfully plan, to follow through on intentions, and may undermine their ability to go against peer and group pressure that may be the requirements of risk reduction change.

Since both the intermediate and high risk groups are diagnosed with borderline personality disorder, the question becomes one of distinguishing between the two groups. As will be presented in the discussion of the DEQ dependency factor, there do seem to be important differences in the way that each of these two groups manifest borderline pathology. The differences seem to coalesce around three unifying themes, 1) dominant coping style (dependent versus independent), 2) mode of affect expression (interpersonal and representational versus motoric and non-verbal) and 3) level of defensiveness (low versus high levels). Since a measure of affect expression was not employed, statements made about these differences are speculative, based on

several suggestive findings.

The low risk group did not score in the pathological range of the BPD scale. However, the group score is suggestive of a vulnerability to borderline pathology. Importantly, however, the low risk group is capable of greater impulse control, can better regulate affect and can achieve a greater level of social adaptation than the other two groups. The absence of borderline pathology signifies greater personality cohesion, greater emotional stability, a more realistic and differentiated sense of self and external reality, and the capacity to cope better with adult demands and conflicts, without regressing to infantile, manipulative or self-destructive modes of behavior which characterize the other two risk groups. The low risk group appears to represent the modal addict described above, whose personality is organized at a neurotic level and who has "selected an isolated mode for achieving the satisfactions and pleasures most people seek in intimate personal relationships" (Blatt et al., 1984a).

Hypothesis 3b, Anxiety: This hypothesis predicted a positive correlation between risk group status and the presence of a clinical syndrome. The intermediate risk group was found to have a significantly greater level of anxiety than the low risk group, and scored one point below the pathological range, indicating a clinically significant elevation on the scale. The other two groups did not even

register in the range of vulnerability to this disorder, though the high risk group scored in between the other two groups. The presence of significant levels of anxiety and a vulnerability to major depression (see hypothesis 3c for a discussion) which characterize the intermediate risk group, considered either separately or together, may have positive implications for the group, at least in comparison to those at high risk.

The Millon scale for anxiety measures clinically significant increases in tension, indecision, and restlessness that may be expressed in a variety of forms. These manifestations include a sense of vague apprehension or feeling that problems are brewing, complaints of physical discomforts, difficulty relaxing, and either specific and focused fears (ex. a phobia) or a more generalized experience of tension. Anxiety therefore may be a signal of psychological difficulty on the horizon or it may be an expression of current, recognizable distress.

The presence and dynamics of anxiety in a non-treatment seeking sample of IVDUs is not well understood, since treatment seekers for the obvious reasons have been better studied. In a treatment seeking opiate addict sample, a sizable minority of 11% were diagnosed with anxiety related problems (ex, panic disorder, phobia, or generalized anxiety). Problems with anxiety, and affective disorders in general, are often thought to precipitate opiate abuse

because the drug acts to sedate feelings of tension and dysphoria (Blatt et al., 1984a). While there were no differences between the risk groups in the present study according to the preference of heroin, the frequency of its injection or the quantity consumed, it may be that the dominant rationale for severe drug use in the intermediate risk group is related to the desire to medicate mood and affect disorders, such as the anxiety found here.

Narcotic addiction has often been conceived of as serving a defensive or coping function which allows an individual to manage intense and problematic affects (Khantzian & Treece, 1985). Recent contributions (see Keller, 1989, for an eloquent discussion of this issue), have highlighted this aspect of drug use which is thought to provide an experience of ideal attunement with the maternal figure that operates as a "core organizing mood state" (a term originating with Greenspan, 1979).

The presence of anxiety in the intermediate risk group is a sign that they are undergoing psychological difficulties. The experience of anxiety may however be an advantage for a group of borderline diagnosed, community addicts at substantial risk of HIV exposure. It may imply both the recognition of substantial difficulties and the potential for greater self awareness, and translate into a motivation to alleviate discomfort by entering treatment. The psychoanalytic literature addresses the capacity to bear

anxiety and the process of its mastery which begins with an ability to passively tolerate anxious feelings. One author (Zetzel, 1965) concludes, that the capacity to tolerate anxiety is a necessary first step toward the resolution of psychological problems. While elevated anxiety is a symptom of psychopathology and, perhaps, the failure of defenses, it reflects the appropriate intrapsychic response to a problematic affect life. More than the other two groups, the intermediate risk group appears to experience greater anxiety and conflict about HIV risk-taking. Their attitude toward risk-taking is one of ambivalence. They dangerously engage in needle-sharing and cautiously limit the risk by sharing with only one other person. The capacity to experience conflict and anxiety, and limit risk-taking practices is a sign of psychological health compared with the high risk group.

The absence of anxiety evident in both the low and high risk groups may be overtly similar, but is qualitatively different. When other results of the study are brought to bear, critical distinctions between the two groups become more apparent. Given the propensity for risk-taking in the high risk group and the borderline nature of their chaotic impulse life, their absence of anxiety is striking. It signifies that severe personality disorder, gross social maladaptation and the uncontrolled, untoward behavioral existence of the high risk group appear ego-

syntonic. These 'facts of life' are both accepted, reinforcing of the self and, on the level of personality organization, may even be experienced as necessary. Put in other terms, there is an absence of ego alien experience and the self is not in evident conflict or distress over what is being experienced and perceived. Therefore, anxiety is not in evidence because despite the knowledge of, for example, substantial HIV risk, the psychological consequences (i.e. anxiety and depression) of that and other difficulties are defensively masked as a function of character defenses (Khantzian & Treece, 1985). Massive denial and dissociation enable the high risk takers to function free of disabling affective problems. There is a psychological cost for this freedom; when the feelings which constitute a sense of unhappiness and danger are minimized and avoided, they consequently fail to serve a protective, warning function of the extremity of their psychological predicament. In a sense, it is not a surprise that the results on the DEQ efficacy scale suggest that the high risk group considers themselves to be more socially effective than the other two groups. This is consistent with the idea that this group masks their desperation by a defensive facade, again suggesting that efficacy in clinical populations may equate with hypomanic defense (Blatt et al., 1982). This enables high risk takers to maintain a self representation of adequate social functioning. Desperation and the emotional impact of their behaviors is enacted in self-destructive

activities, as opposed to being experienced on an emotional level as is the case, more specifically, for the intermediate risk group.

The low risk group, by contrast, does not register anxiety because they engage in substantially less conflictual behavior, experience less inner emotional turmoil and are significantly more stable as a result of a more coherent personality organization. In addition, the low risk group possesses a rigid defensive organization (see discussion of hypothesis 6, DEQ Dependency) not unlike the high risk group in its appearance. Dependent feelings such as helplessness and passivity are warded off by an overtly counterdependent (reflected in the very low DEQ dependency score) stance. However, in contrast to the high risk group which channels emotional difficulty into untoward and excessive behavior in order to maintain a rigid denial of affective discomfort, the low risk group is characterized by self-control and emotional constriction of problematic feelings. Drug use alone may be sufficient to augment psychological defenses to channel, diffuse and defensively avoid problematic conflict. In a sense, differences in the level of affective turmoil, coherence of personality organization, and consequently the capacity to contain (i.e. suppress) discomfort are crucial. These reflect the parallel differences between a borderline (high risk) versus a neurotic (low risk) level of functioning. The low risk group

rated themselves the lowest on the DEQ Efficacy factor, signifying a recognition of relatively poor adaptation according to the larger society's values, and a relative decrease in hypomanic defenses (i.e. compared with high risk-takers).

Hypothesis 3b, Dysthymia: This hypothesis predicted a positive correlation between risk group status and a clinical syndrome. The intermediate group was the only group to score within the pathological range of the dysthymia scale. The low risk group was significantly lower and the high risk group scored somewhat closer to the intermediate group, exhibiting a vulnerability to dysthmia.

Millon (1987) decribes dysthymia as a longstanding mood disorder on a less severe dimension than major depression, which nonetheless has many of its same features. Dysthymics have been preoccupied for at least two years with feelings of discouragement, guilt, may feel apathetic, hopeless, and experience low self-esteem. Dysthymia is the equivalent of what has also been termed minor depression (Spitzer et al., 1978), with the single difference that it is generally not as transient as minor depression.

Numerous research reports suggest that depression is a central issue that opiate addicts contend with (Blatt et al., 1984b & 1984c), although community samples have been found with generally lower rates for both major and minor

depressive disorders (Rounsaville & Kleber, 1985). In addition, Rounsaville & Kleber (1985), and others (Khantzian & Treece, 1985), found that dysphoric disorders were commonly associated with personality disorders in their sample of treated opiate addicts. Therefore, it is not surprising that one of the borderline groups, the intermediate group, manifests this form of psychopathology. This is in keeping with a general pattern of elevated psychopathology for this group: highest on DEQ self-criticism, highest on the major depression scale of the MCMI-II, highest on the MCMI-II borderline scale, high on the antisocial personality scale of the MCMI-II, and highest on DEQ dependency.

From the standpoint of clinical treatments, the presence of dysphoria in the context of severe antisocial personality disorder (see hypothesis 4, below), is of prognostic significance, since depression is one of the most treatable of psychiatric disorders. The ability to report and acknowledge dysphoric feelings demonstrates a capacity to tolerate such feelings (Zetzel, 1965), and is crucial to the resolution of causative psychological or life difficulties. Evidence of depression also signifies a capacity to experience loss, and therefore implies the capacity to form authentic, interpersonal attachments.

The importance of the association between antisocial personality disorder and depression was documented in a

recent treatment outcome study (Khantzian & Treece, 1985). Two groups of antisocial opiate addicts were entered into a psychotherapy research study. Only one of the groups was concurrently diagnosed with major depression. Those with major depression showed significant improvement in 11 of 22 outcome measures, compared with improvement in only 3 out of 22 measures for those without depression. In addition, for the latter group, outcomes only improved on dimensions that were related to drug use, employment, and reduction in illegal activity. Nor did their psychiatric symptoms resolve or improve. In fact, unlike other groups in the comparison, opiate dependent antisocial patients without a concurrent depression showed a decline in their psychiatric status. Instead of improving as a result of the therapeutic relationship, these patients got worse. This is perhaps the strongest evidence to suggest that these addicts may perceive interpersonal relationships as dangerous. Indeed, the authors of this study state that the dramatic findings between the two groups were the consequence of the extreme difficulties in forming interpersonal relationships exhibited by those without depression. They further concluded that, "more than any other aspect of the sociopathy syndrome, the paucity and superficiality of relationships may be the most negative contributor to their lack of response in psychotherapy."

The results of the above psychotherapy outcome study

parallel the findings of the present study. Here too, two groups of antisocial IV drug-abusing, borderline individuals were compared on the outcome measure of HIV risk behaviors and similar results were obtained. Those manifesting an orientation toward dependency (high scores on DEQ dependency) with an anxious, dysphoric mood disorder were found to be at significantly lower risk (i.e. the intermediate risk group) than those who manifested no evidence of either dependency (low scores on DEQ dependency) or a clinical syndrome, such as anxiety or dysthymia. The difference between the groups seems to crystalize around crucial differences in personality organization and defensive structure, with the intermediate group demonstrating greater capacity to form relationships due to a more flexible or fluid defensive style. The high risk group is seen as being rigidly defensive, with extreme difficulties establishing interpersonal relationships because of a characterological aversion to dependency. In fact, if the high risk group directly parallels the unsuccessfully treated non-depressed group mentioned above, and there is reason to believe they are analogous, there are for them appreciable dangers associated with the formation of relationships. Psychological deterioration may ensue, as rigid character defenses are modified in the attempt to form an interpersonal relationship, in contrast to those whose problems are alleviated and helped through the process of

relating. Thus, an acceptance of dependency and the capacity to form interpersonal relationships are at least to an extent, protective factors when it comes to the behavioral risk of AIDS. Individuals who deny dependency and cannot form meaningful ties with other people, comprise the group at highest risk for AIDS.

Hypothesis 3c: This hypothesis was concerned with the positive association between differential levels of risk-taking behaviors and severe clinical syndromes. It was found that of the three groups, only the intermediate group was significantly elevated on the MCMI-II severe clinical syndrome of major depression. In addition, while this group was significantly higher on the depression scale than the other two, it scored below the pathological range. A base rate score of 66 is being interpreted here as a vulnerability to major depression for the intermediate risk group which the other groups did not reveal.

Major depression is described by Millon (1987) as a severe depressive mood disorder which is generally incapacitating. It is marked by extreme feelings of hopelessness, resignation and dread. Often problems with concentration are present, along with decreased interest in the surrounding environment, fatigue, weight loss, insomnia or early wakening. Feelings of sadness, worthlessness, fearfulness, guilt and suicidal ideation are common.

Although the popular view of sociopathic (see discussion of hypothesis 4, below) drug abusers would seem to indicate that antisocial personality disorder and problems with depression are incompatible, this study confirms what has been widely reported elsewhere (Wurmser, 1974; Khantzian, 1977), that the two co-exist in a sizable portion of addict samples. As mentioned above, the co-occurrance or comorbidity of antisocial personality disorder with a depressive syndrome, whether it is dysthymia or a vulnerability to major depression, has positive implications for treatment. This is especially true in comparison to an equivalently disturbed group such as the high risk group that does not show this vulnerability. In previous research (Rounsaville & Kleber, 1982), the greater occurrence of depressive disorders seem to clearly distinguish treatment seeking from non-treatment seeking, community addicts. Although there were no differences between the risk groups according to the amount of time spent in treatment or type of treatment utilized, the intermediate risk group may be more highly motivated than the other two groups to seek treatment in the future, simply because they are more likely to develop a major depressive syndrome. The intermediate risk group also appears better able to benefit from treatment than the other two. A vulnerability to major depression reflects their current capability to delay or postpone the onset of a major depressive episode, yet the depressive structure of low self-esteem, feelings of

depression, dysthymia, and guilt persists.

The rigid, counterdependent defensive styles of the high and low risk groups (suggested by low scores on DEQ dependency) may partly account for their resistance to major depression, whether this is due to emotional constriction for the low risk group or to a defensive masking function of character defenses for the high risk group. Thus, the absence of depression for the low risk group is essentially a good sign, indicating their greater capacity to function normally in society. However, the absence of depression in the high risk group has more ominous implications. It demonstrates a high degree of defensiveness, an imperviousness or invulnerability to feelings of loss, low self-esteem, and helplessness in the face of extremely untoward circumstances. The significantly greater reliance on cocaine found for the high risk group alone, further suggests that the drug "augments a hyperactive, restless lifestyle and an exaggerated need for self-sufficiency" (Khantzian, 1985). Khantzian further contends, "cocaine has its appeal because of its ability to relieve distress associated with depression, hypomania, and hyperactivity." This description is highly consistent with the personality and behavioral correlates associated with the high risk group.

Hypothesis 4: This hypothesis predicted that severe

antisocial personality disorder, measured on the MCMI-II, would be associated with the group highest in risk-taking behaviors. Although group differences were not found, a correlational analysis revealed that risk-taking was strongly and significantly associated with severity of antisocial personality disorder. When the means of the three groups were compared, it was evident that the level of correlational significance was largely determined by the differences between the low risk group (BR=81) and the other two groups, intermediate (BR=89) and high risk (BR=90), respectively. In other words, when the groups are compared, the low risk group emerges at the low end of the pathological scale for antisocial personality disorder, and the other two groups are more severely antisocial.

Differences on the scale for antisocial personality disorder seem to suggest that the low risk group has the least severe problems related to personality functioning. The greater severity of personality disorder for the intermediate and high risk groups is further substantiated by the finding of marked differences on the borderline scale. On thhe BPD scale, a similar distinction is found separating the low risk group from the other two, with the difference being that the intermediate and high risk groups performed at the significantly more dysfunctional, borderline level. When all of the significant personality scales are summarized, three general antisocial groups can

be distinguished. These groups are characterized by strikingly different personality differences, that are correspondingly associated with different levels of HIV risk-taking behaviors: 1) those relatively low on the antisocial scale who have no concurrent severe personality disorder, low on DEQ Dependency -- low risk takers; 2) those relatively high on the antisocial personality disorder scale with concurrent borderline personality disorder, high on DEQ Dependency, with concurrent anxiety and dysthymia -- intermediate risk takers; 3) those relatively high on the antisocial personality disorder scale with concurrent borderline personality disorder, low on DEQ Dependency, with no concurrent clinical syndrome -- high risk takers.

The characterization of antisocial personality disorder by Millon (1987) is quite apt, when he descibes:

"These individuals act to counter the expectation of pain and depredation at the hands of others; this is done by engaging in duplicitous or illegal behaviors designed to exploit the environment for self-gain. Their aggrandizing orientation reflects their skepticism concerning the motives of others, a desire for autonomy, and a wish for revenge and recompense for what they feel to have been past injustices. They are irresponsible and impulsive, qualities they believe are justified because they judge others to be unreliable and disloyal. Insensitivity and ruthlessness are their only means to head off abuse and victimization."

In one of the only studies to date which has explored the relation of personality variables to level of HIV risk, Brooner et al. (1990) was able to show that those diagnosed with antisocial personality disorder reported significantly higher levels of needle-sharing and needle-sharing with

significantly more partners, when compared to needle-users without this diagnosis. The frequency of drug injection was found to be comparable between these two groups, as in the present study.

Though in some respects comparable to the results reported by Brooner and his colleagues, the present study found a somewhat different result: HIV risk-taking was not so much associated with a diagnosis of antisocial personality disorder but was associated with the degree of this disorder, and additionally was found to co-occur with BPD. Here too, the stringency of these two diagnostic procedures used in the different studies may account for the differences found. If more strict criteria had been employed here, the borderline groups might be the only antisocial groups found, since they were equivalent and higher on the MCMI-II antisocial scale.

Another possible explanation for the differences between the two studies may be accounted for by a slight tendency on the part of some antisocial addicts to under-report their risk-taking behavior. As mentioned before, several individuals were excluded from the low risk group and the final data analysis for under-reporting risk behaviors. It is possible that some others may have gone undetected, which could then result in an artificially inflated score on the antisocial scale for the low risk

group. In general, efforts to validate addict's self-reports have led to a widespread trust in their responses, when external negative contingencies are not perceived (Maisto et al., 1983).

Brooner concludes that the antisocial personality disordered patient has "extremely poor impulse regulation, a reckless disregard for the safety of themselves and others, and has multiple superficial and unstable relationships." Personality differences related directly to HIV risk behavior in this comparison of addicts with and without a diagnosis of antisocial personality disorder. The present study adds a twofold qualification to this over-general statement. First, severity of the disorder may reflect on risk-taking level. In the present study, differentiation between severity levels of antisocial personality disorder was able to distinguish between those at substantial risk and those at low risk. Second, it is useful to distinguish between subtypes of those who score high in the pathological range for antisocial personality disorder. An examination of those high on the antisocial personality scale, in the current study, reveals further personality differences which have meaningful ramifications for HIV exposure. Those high on DEQ dependency are prone to circumscribe their risk through the formation of single-partner needle-sharing dyads, while those low on DEQ dependency share their needles more readily with a series of other acquaintances.

Hypothesis 5: It was expected that level of ego development, as measured on the Loevinger sentence completion test, would decline as risk status increased. This hypothesis was not supported. Differences in risk group status were not associated with differences on Loevinger ego development ratings.

This hypothesis was arguably the most speculative of the study. Though the Loevinger scale has been widely used to assess substance abusing populations, and different levels are associated with significantly different outcomes, the scale provides only a general assessment of ego developmental level. It was not a great surprise that the scale was not sufficiently sensitive to register the more subtle differences that may exist between the three risk groups. Ego development is seemingly less proximal to risk-taking than is the construct of psychopathology or sensation-seeking, for instance. As the results demonstrate, there is a substantial heterogeneity among the sample as a whole, which did not change once the risk groups were formed. Ego development can differentiate clinical from non-clinical samples, which was demonstrated by Frank & Quinlan (1976) who reported on the stage differences between delinquent and non-deliquent girls. Developmental differences which may exist within an extreme, clinical sample may be found along altogether different dimensions than those measured by the Loevinger scale.

Hypothesis 6: This hypothesis was concerned with the various types of experiences that have been associated with depression, those focused primarily on issues of dependency or self-criticism. It was expected that depression expressed in terms of feelings of dependency and object loss would be associated with the highest level of risk-taking, due to the allegedly more primitive focus of an "anaclitic depression". Low risk status was expected to be associated with a guilt-ridden, self-critical depression, due to its theoretically more advanced focus on "introjective" depressive issues. The intermediate risk group was expected to be a hybrid of the two scales, falling in the midrange of both.

The risk groups differed significantly on the DEQ dependency factor alone, and were all found to be relatively high on the self-criticism factor. The hypothesis was partly supported by the presence of mixed dependency and self-criticism in the intermediate risk group, and with the low risk group scoring high on self-criticism and low on the dependency factor. The high risk group was also high on self-criticism and low on the dependency factor. The similarity between the high and the low risk group was not expected and thus DEQ factors were not able to significantly distinguish these two groups from each other. It is evident from these results that the two groups experience and express depression in, at least an overtly, similar manner.

The two groups both respond to distress, weakness and dependency, through counterdependent measures as they seek to avoid or minimize the effects of dependency feelings, in order to fortify their independent stance. This interpretation of the DEQ results for the dependency factor, partly relies on the factor's correlation with other measures. Blatt et al (1982) have stated that high scores on dependency correlate with low defensiveness, and low dependency scores correlate with high defensiveness. Dependency and helplessness may be acutely problematic experiences of depression for the low and high risk groups to articulate, and may have some etiological significance in terms of their becoming drug dependent. Therefore, feelings of distress may often be expressed through substance abuse and antisocial behavior (Blatt & Shichman, 1981; Khantzian & Treece, 1985).

Though any statement about how the risk groups might differ on a measure of dominant mode of affect expression is beyond the scope of the present study, affect expression is clearly most pressing for the intermediate and high risk groups given the storm of their borderline affectivity. It may be tentatively speculated that the intermediate risk group appears to express affect through symbolization, both representational, in language, and through symptom-formation, which allows or even necessitates the formation of interpersonal attachments. The high risk group appears to

express affect primarily through physical or motoric activity, with little capacity for basic trust and the formation of mutual relationships.

The intermediate risk group was high on dependency, which showed compatability with dependency scores for a normal population (Zuroff et al., 1990), but also reported significant features of guilt and self-criticism (i.e. high scores for DEQ, Factor 2, Self-Criticism). In previous literature, Blatt et al. 1982 found that this configuration was found in patients diagnosed as suffering from "unipolar depression with borderline features". This is consistent with the findings of the present study, which found that the intermediate risk group scored within the pathological range for both the borderline scale and the dysthymia scale, with a significant vulnerability to major depression. The fact that high scores on DEQ dependency and self-criticism predict depressive, borderline psychopathology is important. It suggests that the MCMI-II constructs of borderline, dysthymia and major depression correspond to other diagnostic classification systems and therefore helps to improve construct validity for these MCMI-II scales.

Blatt's description of the experience of depression emanating from both dependency and self-criticism is telling with regard to the psychological dilemma facing the intermediate risk group. This may speak to the ambivalence of this group in terms of self-protection from HIV exposure,

where caution is mixed with risk. For instance,

> "the combination of the two creates a unique situation especially difficult to resolve. Intense dependency can lead to a sense of personal weakness and failure, while intense strivings to compensate for feelings of inadequacy can interfere with the gratification of dependent longings. Thus an individual high on both Dependency and Self-Criticism factors may be struggling with a difficult dilemma and be particularly vulnerable to profound and intense experiences of depression." (Blatt et al., 1982).

Discussion Summary:

In general, the combination of severe antisocial personality traits and borderline personality disorder are significantly associated with intermediate and high HIV risk-taking behaviors. The existence of a strong dependency orientation for the intermediate risk group is relatively protective by comparison to the high risk group which is counterdependent. Strong dependency, and its correlate low defensiveness, may be perceived by some addicts (those with it or without it) as a psychological liability since it appears to coincide with the experience of greater painful emotional experiences. However, these diagnostically significant clinical syndromes are treatable and, overall, have positive prognostic importance for the intermediate risk group, who because of their ability to form interpersonal attachments can lower their risk and benefit from formal treatment. Relative complexity and differentiation of representations can be a somewhat

protective factor, but only when combined with an acceptance of dependency and a belief in enriching attributes of interpersonal relatedness. Counterdependence and its correlate, high defensiveness, in the context of an antisocial and borderline personality is a severe liability and is associated with the greatest levels of HIV risk-taking. Conversely, counterdependence in the context of less severe antisocial traits and a neurotic personality organization lead to the greatest protective behaviors found in this community sample of intravenous drug users.

It is clear from this discussion that three key personality dimensions contribute to a model of HIV risk-taking for this community sample of IVDUs: antisocial personality disorder, borderline personality disorder, and the DEQ dependency factor. The presence of a clinical syndrome or the vulnerability to a severe clinical syndrome is secondary to high DEQ dependency. Further evidence supports a separation of those with concurrent antisocial personality disorder and BPD into a dependent subgroup and an independent subgroup. These subtypes are decided according to scores on the DEQ dependency factor, high and low scores respectively. When these subtypes are delineated, differences emerge in terms of clinical picture, treatment implications and HIV risk-taking level.

Clinical Implications

The intermediate risk group can be reached through traditional substance abuse treatment approaches and psychopharmacological interventions, based on their capacity to maintain attachments and form a therapeutic alliance (Gerstley et al., 1989). In fact given the value placed on interpersonal relationships, treatment success for this group may be predicated on a combined behavioral and psychodynamic approach. HIV prevention strategies for this group will need to address both aspects of their ambivalent attitude, their risk-taking activities and their precautions, in order to bring about a higher level integration of these opposing motives and behaviors to reduce HIV exposure.

The significance of the high DEQ dependency score, which in this study provided evidence of the intermediate group's capacity to form more mutual and stable interpersonal relationships, may have a more general significance and application. Since treatments for a wide range of addictions and compulsions also face resistance in the form of high defensiveness and counterdependence, a measure of this trait should predict treatment response. Formation of a therapeutic alliance which is the sine qua non of treatment success is itself a function of the individual's more general capacity to form and maintain mutual interpersonal relationships. An exaggerated need to

maintain autonomy in a defensive manner may conflict with this most basic requirement of treatment.

The high risk group is of greatest concern because of its destructive behavior toward others and self alike. The group's problems stem partly from psychological deficits that render them the least "vulnerable" to experience their problems on the level of emotion. Painful affect which is denied and avoided through frenetic activity and excessive cocaine use, could otherwise be a mobilizing factor to seek treatment or assistance from others. This group represents the very greatest risk of contracting AIDS and of spreading it to others. However, they are also the least capable of modifying their behaviors to reduce risk. Treatment providers will not flinch from offering available treatment slots to those who appear more amenable to therapeutic improvement, those who in one sense will comply with program guidelines, and high risk individuals will be out in the cold.

Two treatment programs now in existence which are geared more specifically to these types of problems, are the prison and residential (i.e. such as Daytop Village) programs which stress behavioral rewards and punishments to improve and enhance prosocial character development. These are the two institutional settings able to offer the most help over an extended time period. The present study underscores the crucial need to develop more effective

educational, prevention and treatment interventions for antisocial IV drug users who are now at greatest risk of spreading AIDS.

Study Limitations and Implications for Future Research

Limitations of the Present Study

The present study focussed mainly on subjects at the relatively low end of the socioeconomic ladder. The range was found to incorporate three general levels, those working at blue-collar jobs, those publicly subsidized and those living on the streets with no visible or legal means of support. The sample does not adequately represent the more hidden community addicts who work in white-collar, professional occupations. These findings may not generalize therefore to other socioeconomic groups.

In addition, of all the needle-use variables, only confirmation of needle injection (ex. by viewing recent needle marks) was validated to support self-reported information. In some circumstances, it may be possible to link self-reported drug use behavior with HIV test results since the accuracy of these self-reported (ex. needle-risk behaviors) data have not been sufficiently verified. In the case of needle-risk behaviors, for instance, it would seem that those who engaged in the highest risk behavior would have correspondingly high rates of HIV infection.

Confirmation of self-reported information is much needed and often difficult to obtain.

Implications for Future Research:

1. The Zuckerman sensation seeking scale will require significant modification in order to be used in further research with high sensation seeking populations, where the object is to distinguish more subtle differences within groups. A measure that is sufficiently sensitive to detect within group differences for populations such as substance abusers will hinge on a greater understanding of that group's values, behaviors and pursuits. Only within such a context can one understand the relevant dimensions along which individual differences will vary. Therefore, in order to develop a scale for use with mainstream, substance abusing populations, the items must be easily read and understood by those with a high school education. The current scale can also be criticized for its white, middle-class bias since items which reflect certain activities such as skiing down a mountain slope, appreciation of abstract art and travel do not have the same popularity or connotations for individuals at lower socioeconomic levels of society.

2. Future focus on antisocial personality disorder should explore its subtypes with implications for quantifying etiological differences, treatment matching, and

for prevention. In particular, there seem to be at least two variants of antisocial personality disorder which emerge: those whose style is independent, who resist deep attachment in interpersonal relationships and those who are dependent and are capable of and require deeper emotional relating and commitment in interpersonal affiliations. These two subtypes are related to quite different outcomes, in terms of formal drug treatment, HIV risk, etc.

In addition, these findings have direct implications for AIDS prevention interventions which stress helping IVDUs build supportive social networks. Program developers need to first analyze which IVDUs are most appropriate for this type of intervention. The present study suggests that intermediate risk takers are perhaps ideally suited to such an intervention and high risk takers will likely not succeed where essential interpersonal skills and interests are requisites of change. In this case, an ideal client/intervention match will be guided by a personality-based assessment used in combination with a behavioral one.

Future researchers in the context of demonstration research grants or AIDS prevention centers could easily administer two to three personality measures in order to best match individuals to different types of interventions and to investigate further which individuals do best in a given treatment or prevention program. In this context,

larger samples can be studied, and the associations of needle-risk with personality variables may be analyzed with greater power. If personality variables are not assessed, a significant psychological dimension will be overlooked which has the capability to explain treatment and prevention successes or failures.

3. Mode of affect expression and defensive operations could usefully be explored between the three groups, with an eye toward establishing differences in their etiology, as well as proposing prevention and treatment guidelines. Based on the present study, there is some evidence to suggest that defense structure may be inextricably linked to dominant mode of affect expression, such that the low risk group uses emotional constriction to defend against affect problems and that their mode of expression is a nonverbal one; the intermediate group uses displacement to defend against unpleasant affect and therefore engages with significant others who "accept" displaced affect, and their mode of affect expression is interpersonal; the high risk group is masking depression through dissociation and projection and employs a non-verbal, motoric mode of affect expression.

4) It will be important to look at the long term stability of the needle-risk classifications. For example, do low risk-takers evolve into high risk-takers, given the similarity of their counterdependent styles and continued drug use? Which group of IVDUs is most likely to reduce risk

of HIV exposure? In addition to a proposed reclassification of needle-risk at follow-up, in order to look at the stability or drift of IVDUs' behavioral patterns, it will be important to compare initial risk categorization with all possible outcomes: needle-risk behaviors, sex-risk behaviors, health, treatment successes or failures, type of treatment entered, etc. to attempt to quantify the mediating variables which most influence and predict behavior change, both positive and negative.

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