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URINE TESTING OF JUVENILE DETAINEES:
A PROSPECTIVE STUDY -- PHASE 3 --
IDENTIFYING YOUTHS AT HIGH RISK OF FUTURE
DELINQUENCY AND DRUG USE

FINAL REPORT

by

Richard Dembo, Ph.D.
Departments of Criminology and
Epidemiology and Policy Analysis
University of South Florida
Tampa, Florida 33620

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INTRODUCTION

This report summarizes the work we have completed during Year 3 of our ongoing, perspective study of juvenile detainees. The work involved the collection and analyses of new recidivism and educational experience information, as well as secondary analyses of our existing, rich data set. In order to place our Year 3 activities in context, we provide below a brief history of this project until the beginning of our Year 3 work. This review is followed by an overview of the objectives of our Year 3 activities. Finally, summary discussion is given to each of the products resulting from our Year 3 funding.

Brief History of the Project Prior to Year 3

The project is a longitudinal effort to assess the value of urinalysis in identifying detained youths at risk of future drug use and delinquent behavior; and to suggest intervention strategies to reduce the likelihood of these youths becoming further involved in drug use and/or criminal activities. The study began in December 1986, and was funded by the National Institute of Justice (NIJ) for its first year.

In its first year, this comprehensive study obtained the following data on a cohort of 399 unduplicated, Florida resident detainees entering the Hillsborough Regional Juvenile Detention Center (HRJDC) from the community in 1986-87: (1) demographic and referral to juvenile court information, (2) personal interview information regarding alcohol and other drug use, sexual victimization and physical abuse experiences, self-reported personal and friends' delinquent behavior, and emotional/psychological functioning, and (3) voluntary urine specimens. All female detainees and a sample of half the males (with a random start) entering the detention center were invited to participate in the study. A 98 percent participation rate was achieved.

This initial contact (T₁) information enabled us to address the following key research questions:

- Research Question #1: How do detainees' alcohol, other drug use and mental health (ADM) problems relate to their demographic characteristics and referral histories?
- Research Question #2: Does it appear that urine testing of detainees (using the EMIT R procedure) for drug use by urinalysis at point of entry into secure detention may be a promising method for identifying youths with emotional/psychological problems and/or referral histories for serious or frequent delinquent behavior?

During a successful project first year, we submitted a proposal, "Urine Testing of Juvenile Detainees to Identify High Risk Youths: A Prospective Study--Follow-Up Phase," which, happily, was awarded funds by

NIJ and the Office of Juvenile Justice and Delinquency Prevention (OJJDP) -- and enabled us to pursue our second year's work.

A variety of follow-up data were collected: (1) information on the youths' official delinquent behavior as determined by a review of juvenile and adult arrest records and/or other referrals to juvenile court 6 months, 12 months and 18 months after their initial interviews; and (2) detailed, 1 year follow-up interviews were completed with 305 of the initially interviewed 399 youths to assess, among other things, their alcohol and other drug use, emotional/psychological functioning and delinquent behavior during the follow-up period. In addition, voluntary urine specimens were obtained from 201 youths who were in the community at the time of their follow-up interview or shortly before they were reinterviewed.

These follow-up data, in conjunction with the youths' T₁ information, permitted us to address two additional research questions:

Research Question #3: Do the detainees' alcohol, other drug use and mental health problems at initial interview relate to these problems over time? If so, which problems?

Research Question #4: Does it appear that urine testing of detainees for drug use by urinalysis at point of entry into secure detention may be a promising method of identifying youths at high risk of future drug use or delinquent behavior? If so, which drugs or offenses?

-- and to partially address a fifth research question:

Research Question #5: Do the detainees' alcohol, other drug use and mental health problems relate to recidivism? If so, for what offenses?

Objectives for Year 3 of the Project

Based upon a successful proposal review, OJJDP awarded us funds to complete a number of data collection and analyses activities during the project's Year 3 to achieve four main objectives:

1. To collect official record information on the youths' contact with the juvenile or adult criminal justice systems 24 months and 30 months following their initial interviews, so that Research Question #5, noted above, could be more completely answered.

2. To conduct a series of secondary analyses of our existing data set, which would enable us to answer a sixth research question:

Research Question #6: How do the youths' drug use and delinquent/criminal behavior relate to themselves and each other over time? What roles do sexual

victimization and physical abuse play in this process?

3. To gather and analyze detailed information on the youths' school/educational experiences, which would enable us to address a seventh research question.

Research Question #7: How do the youths' educational experiences relate to their behavior in the community? How are the youths' relationships with the juvenile justice system associated with their activities and performance in school?

and 4. To produce several special documents and reports, which would be of value to practitioners in the juvenile justice system. This material would include: (a) a procedures manual on establishing and maintaining a screening/triage unit at a juvenile detention center, (b) a screening protocol to be used in the screening/triage process and (c) a supplemental manual on how to link troubled youths and their families with community service agencies.

ACCOMPLISHMENTS OF YEAR 3 OF THE PROJECT

Providing a More Complete Answer to Research Question #5

Research Question #5: Do the detainees' alcohol, other drug use and mental health problems relate to recidivism? If so, for what offenses?

In a previous paper (Dembo, Williams, Schmeidler, Getreu, Berry, Genung, Wish and La Voie, in press), we reported the results of an examination of the predictors of juvenile court referrals/arrests of youths in our study for violent felony offenses, property felony offenses, drug felony offenses, violent misdemeanor offenses, property misdemeanor offenses, drug misdemeanor offenses and public disorder misdemeanor offenses during the eighteen months following their initial interviews. The most consistent predictor of the youths' subsequent arrests for offenses in the seven offense categories was their previous referrals to juvenile court on similar charges. Placement in the detention center on a violent felony, property felony or drug felony charge was significantly related to a subsequent arrest for each respective offense. Younger youths had significantly higher rates of referral/arrest for violent misdemeanor and property misdemeanor offenses than older youths. Black youths had significantly higher rates of referral/arrest in most offense categories than non-black (predominantly white) youths. Further, compared to females, male youths had higher rates of referral/arrest for property felony and public disorder misdemeanor offenses.

The youths' self-reported use of alcohol or reported lifetime frequency of use of marijuana/hashish or cocaine were not substantially related to subsequent arrests for offenses in any of the seven offense categories. In contrast, the results of the EMIT R tests probing for the recent use of cocaine prior to initial interview were significantly and

positively related to subsequent referrals/arrests for property misdemeanor offenses.

In particular, the EMIT R test results for cocaine at initial interview were related significantly and positively to the youths' referrals/arrests for property misdemeanor offenses during the twelve and eighteen months following the date of their first interview. Further analyses found these relationships to hold even when the EMIT R test results for cocaine were entered last in the regression analyses.

The results of this first set of recidivism analyses indicated statistically significant but low to moderate magnitudes of relationship existed between the various predictor variables and recidivism. Since the strengths of the relationships tended to increase as the length of the follow-up period increased, data collection and analyses for longer time periods was indicated.

We developed the following summary measures for the seven offense categories: violent felonies: murder/manslaughter, robbery, sex offenses, aggravated assault; property felonies: arson, burglary, auto theft, larceny/theft, stolen property offenses, damaging property offenses; drug felonies: drug offenses; violent misdemeanors: sex offenses, nonaggravated assault; property misdemeanors: larceny/theft, stolen property offenses, damaging property offenses; drug misdemeanors: drug offenses; public disorder misdemeanors: public disorder offenses, trespassing offenses.

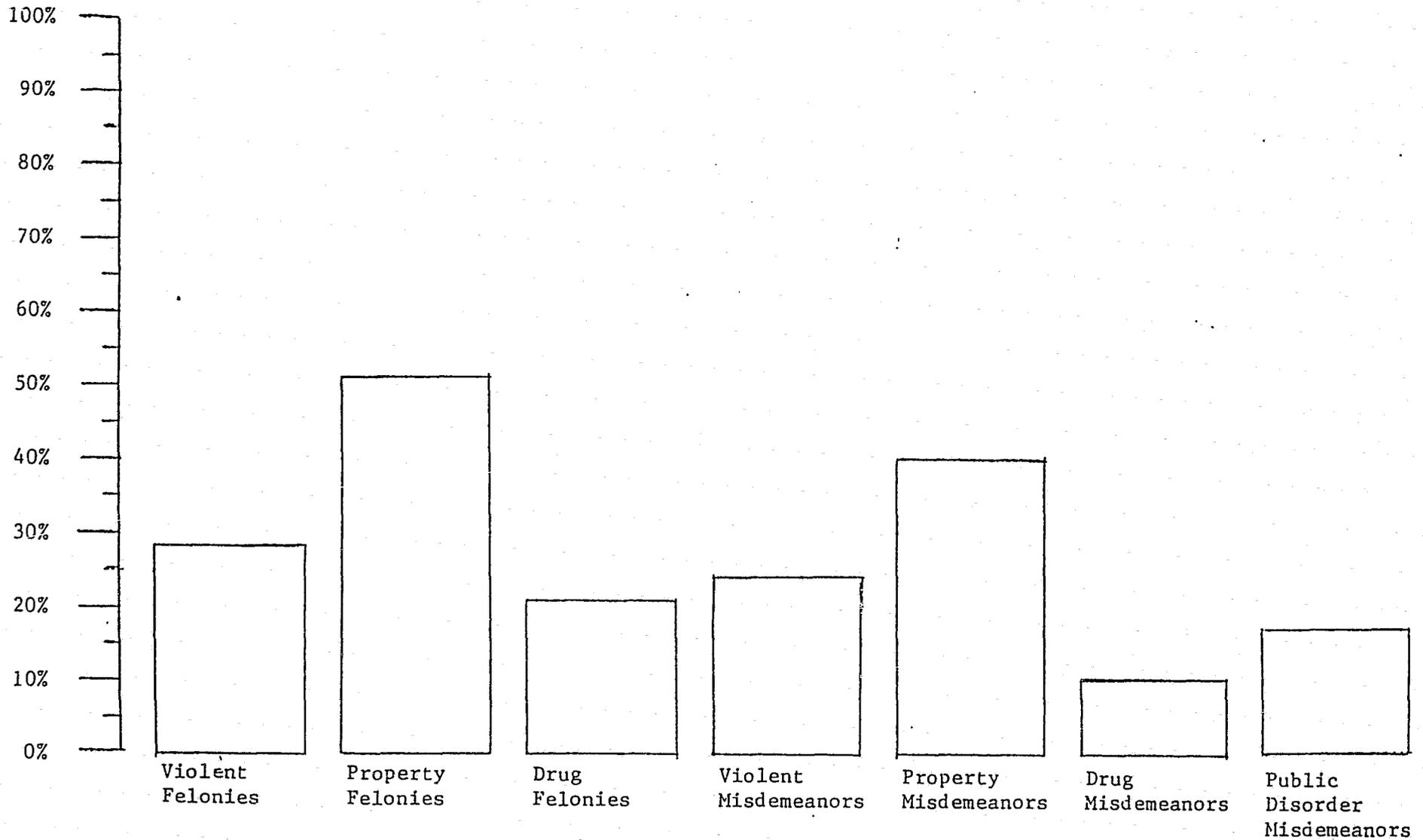
Figure 1 shows the rates of referral/arrest for project youths 30 months following the date of their initial interviews. Of particular note, 51 percent of the youths had at least one referral to juvenile court or one adult arrest for a property felony, and 40 percent for a property misdemeanor, offense during the thirty months following their initial interviews. Although 21 percent of the youths had an official record of contact with the juvenile court or police for a drug felony charge, relatively few youths (10%) had a referral/arrest for a drug misdemeanor charge.

The major focus of our analyses was to determine the relationship between the youths' demographic characteristics, referral history, alcohol and other drug use, physical abuse and sexual victimization histories and reason for being placed in the detention center at point of initial interview to their official records of juvenile or adult arrests during the 24 months and 30 months following their first interviews. To this end, separate regression analyses were performed involving the youths' records of arrest for violent felony offenses, property felony offenses, drug felony offenses, violent misdemeanor offenses, property misdemeanor offenses, drug misdemeanor offenses and public disorder misdemeanor offenses. Two regression analyses were run for each of these variables, one for the 24 months and a second for the 30 months following the youths' initial interviews.

The overall R^2 values for the various predictor variables indicate they account for from 13 percent to 23 percent of the variance in the seven offense categories for the 24 month follow-up period, and from 14

FIGURE 1

PERCENT OF YOUTHS WITH 1 OR MORE REFERRALS/ARRESTS FOR VARIOUS CATEGORIES
OF OFFENSES DURING THE 30 MONTHS FOLLOWING THEIR
INITIAL INTERVIEWS (n=396)



percent to 30 percent of the variance in the 30 month follow-up period. Compared to the R^2 values for the 18 month follow-up period (range 10 percent to 22 percent of the variance) (see Dembo, Williams, Schmeidler, Getreu, Berry, Genung, Wish and La Voie, in press), the R^2 values increase in the 24 month follow-up period, and show a further increase in the 30 month follow-up period.

The most consistent predictors of the youths' subsequent arrests for offenses in the seven offense categories is their previous referrals to juvenile court on similar charges (in five cases). Placement in the detention center on a violent felony, property felony or drug felony charge was significantly related to a subsequent arrest for each respective offense. Younger youths had significantly higher rates of subsequent referrals/arrests for violent felony, property felony, violent misdemeanor, property misdemeanor and (for the 30 month follow-up period) public disorder misdemeanor offenses, than older youths. Black youths had significantly higher rates of referral/arrest for offenses in five of the seven offense categories (property felony and property misdemeanor arrests are the exceptions), than non-black (predominately white) youths. In addition, compared to females, male youths had significantly higher rates of referral/arrest for six of the seven offense categories for either the 24 month or 30 month follow-up periods.

The youths' self-reported use of alcohol or reported lifetime frequency of use of marijuana/hashish or cocaine at initial interview were not substantially related to subsequent arrests for offenses in any of the seven offense categories. In contrast, the EMIT R test results for cocaine at initial interview were significantly ($p .001$) and positively related to referrals/arrests for property misdemeanor offenses during the twenty-four and thirty months following the date of initial interview. Further analyses found these relationships to hold even when the EMIT R test results for cocaine at initial interview were entered last in the regression analyses. These findings are consistent with the findings emerging from our recidivism analyses covering the eighteen months following these youths' initial interviews (Dembo, Williams, Schmeidler, Getreu, Berry, Genung, Wish and LaVoie, in press).

The regression analyses also identified a significant ($p .05$), positive relationship to exist between the EMIT R test results for cocaine at initial interview and referrals/arrests for property felony offenses during the subsequent thirty months. However, the simple correlation(r) between the urine test results for cocaine and referrals/arrests for property felonies is not statistically significant for the twenty-four and thirty month follow-up periods ($r=.043$ and $.031$, respectively). Further study of the data indicated that the regression effects (b weights and betas) were, in part, due to interactions between the EMIT R cocaine results and other variables -- such as self-reported lifetime use of cocaine (cf. Dembo, Williams, Wish and Schmeidler, 1990).

Table 1 shows the percentage of youths who were found to be urine test positive or negative for recent cocaine use at their initial interviews who had referrals/arrests for one or more property felony or property misdemeanor offenses during each of the cumulative (i.e., 24 month and 30 month) official record follow-up periods. The results

TABLE 1

PERCENT OF EMIT® IDENTIFIED COCAINE AND NON-COCAINE
USERS PRIOR TO INITIAL INTERVIEW WHO WERE SUBSEQUENTLY
REFERRED TO JUVENILE COURT OR ARRESTED FOR PROPERTY
FELONY OR PROPERTY MISDEMEANOR OFFENSES

Percent With One or More Referrals/Arrests

EMIT® test results for cocaine use prior to initial interview	6 months following initial interview	12 months following initial interview	18 months following initial interview	24 months following initial interview ^c	30 months following initial interview ^c
1. Referrals/Arrests for Property Felony Offenses^a					
Negative (n=359)	26%	36%	43%	47%	50%
Positive (n=39)	26%	46%	56%	62%	62%
2. Referrals/Arrests for Property Misdemeanor Offenses^b					
Negative (n=359)	20%	26%*	33%*	36%*	38%*
Positive (n=39)	28%	44%*	51%*	54%*	56%*

a. Offenses included referrals/arrests for arson, burglary, auto theft, grand larceny and receiving stolen property.

b. Offenses included referrals/arrests for petty larceny, retail theft, receiving stolen property (under \$100) and damaging property (vandalism).

c. Two youths died during the fourth 6 month follow-up period, leaving 357 EMIT® cocaine negative youths in the analyses.

*p < .05

indicate that, with one exception, cocaine positive youths had higher referral/arrest rates than cocaine negative youths for property felony and for property misdemeanor offenses in each of the five follow-up periods. The referral/arrest rate differences between the two groups in regard to property misdemeanors are statistically significant from the 12 month to the 30 month follow-up periods. These findings highlight the usefulness of urine testing for drug use (especially recent cocaine use) in identifying youths' at high risk for future referrals to juvenile court or adult arrests for property offenses. (A paper reporting these results [see Appendix A for a copy] has been accepted for publication in the International Journal of the Addictions.)

Answering Research Question #6

Research Question #6: How do the youths' drug use and delinquent/criminal behavior relate to themselves and each other over time? What roles do sexual victimization and physical abuse play in this process?

The Relationship Between Marijuana/Hashish Use and Delinquency over Time

The first paper we prepared in addressing Research Question #6 involved examination of a structural model of the relationships between the youths' marijuana/hashish use (measured by self-report and urine test data analyzed by the EMIT R procedure) and self-reported delinquent behavior (general theft, crimes against persons, index offenses, drug sales and total delinquency) to themselves and each other over time. The model is shown in Figure 2.

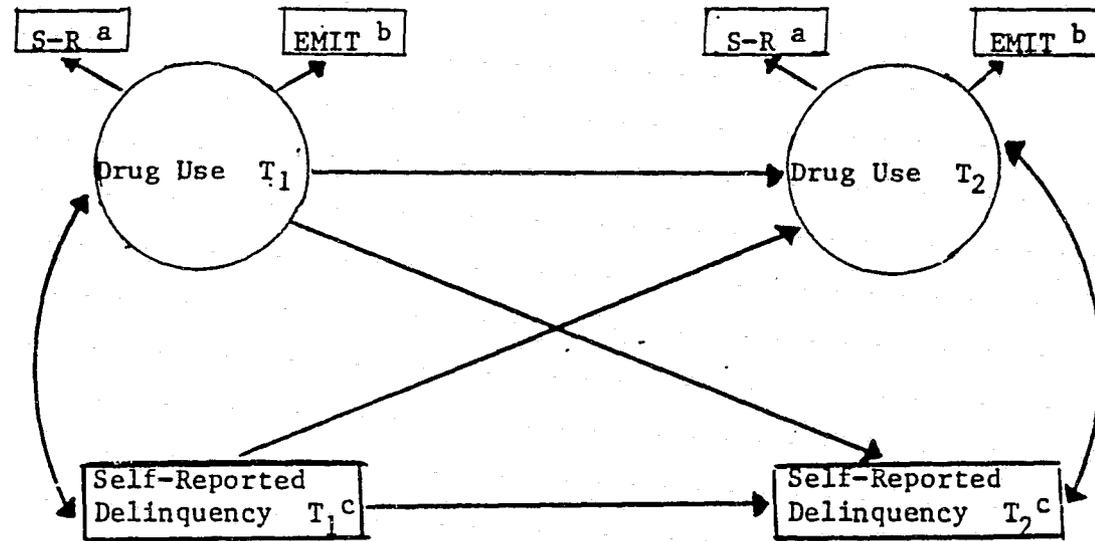
Based on a review of the relevant literature, the model represents the youths' marijuana/hashish use and other delinquent behavior as distinct, but interrelated experiences at each time period covered by the study and over time. In particular, the marijuana/hashish use and delinquency constructs are specified as autoregressive variables. This model specification is reflective of the literature documenting the persistence of the use of illicit drugs and participation in delinquent behavior among high risk youths.

In addition, cross-over effects linking marijuana/hashish use at time (T1) to delinquency at a second time point (T2), and connecting delinquency at T1 to marijuana/hashish use at T2, are hypothesized. This set of expected relationships reflects the literature indicating a drugs-crime connection among high risk youths who are involved in marijuana/hashish use. Two hundred and one youths, from whom we obtained urine specimens at the initial and follow-up interviews, were the focus of these analyses.

The data analyses used some of the newly available multivariate statistical methodology for ordinal, censored, and generally non-normal data, which have been refined and robustified in the PRELIS and LISREL-7 programs developed by Joreskog and Sorbom (1988, 1989). The analyses were based on matrices of polychoric and polyserial correlations and

FIGURE 2

MODEL OF THE RELATIONSHIP BETWEEN MARIJUANA/HASHISH
USE AND DELINQUENCY OVER TIME



NOTES:

a. S-R= self-reported drug use

b. EMIT=EMIT[®] urinalysis results

c. The self-reported delinquency scales are:

- (1) index crimes, (2) general theft crimes, (3) crimes against persons,
- (4) drug sales and (5) total delinquency

their asymptotic sampling variances and covariances. Estimation of the linear structural models was by weighted least squares (WLS), as implemented in LISREL-7. Use of the WLS method is advantageous with ordinal data because it produces robust chi-square fit statistics and correct standard errors for parameter estimates even though the normality assumptions are often violated.

The LISREL-7 model consists of two parts. The measurement model refers to the relationship of the latent variables to the observed variables. The structural equation model contains the structural relationships among the latent variables; it includes the causal effects and the amount of unexplained variance among these variables. Our analyses proceeded in two stages. First, we examined the relationship of the observed variables to the theoretical or latent variables through the use of confirmatory factor analysis. Next, we estimated the relationships among the theoretical variables.

The chi-square test was used to test the fit of the measurement and structural models to the polychoric and asymptotic covariance matrices for the observed variables. A non-significant chi-square test provides evidence of an acceptable fit of the measurement model or structural model to the data.

The model was first estimated assuming no correlated errors. However, the model was specified in a LISREL Submodel 3 format (Joreskog and Sorbom, 1989), which permitted the study of correlated error terms, if indicated.

Only 53 females were involved in the analyses. Since reliable asymptotic variances and covariances of estimated variances cannot be produced in small samples, we were not able to use LISREL-7 to examine the relationships among the marijuana/hashish use and delinquency variables for the 53 females involved in the analyses. However, the data available for the female youths permitted insight into level of marijuana/hashish use and delinquency differences between the males and females; and study of the polychoric correlation matrices of these variables for the females enabled us to draw some important conclusions regarding their interrelationships.

Results

Overall, the hypothesized model of the relationships between marijuana/hashish use and delinquent behavior over time was supported by the data, with the fit of the model to the data being particularly good for general theft crimes and drug sales. Although white youths were found to be significantly more involved in the use of marijuana/hashish at the initial interview and follow-up data collection phases of the study, than black youths, race did not have an appreciable effect on the pattern of relationships that were found. In addition, while male youths reported greater participation in general theft and index offenses during the year preceding their initial interviews, and had a higher EMIT R positive rate for recent cannabinoid use at follow-up, there were similarities in the polychoric correlation matrices for the two gender groups in regard to general theft offenses, crimes against persons and

total delinquency. In the case of index offenses, the correlations among the variables was higher for males, than females. However, the relationships among the marijuana/hashish use and drug sales variables were generally much higher among the females in the study.

More studies, involving youths of different ethnic, gender and socioeconomic groups in different regions are needed to assess the generalizeability of our findings and the structural model we tested. Research is particularly needed among high risk youths, such as juveniles entering detention centers. Although these youths are difficult to engage in longitudinal studies, such inquiries can be completed if they have the trust of the young people involved and a dedicated research staff.

The persistence of marijuana/hashish use and delinquency among the youths we studied is disturbing, and raises important policy issues. First, it is important that the youths we studied be seen in holistic terms. Their continued involvement in delinquent behavior, and their marijuana/hashish use over time, are related to troubled life styles. Our findings highlight that programs focusing on only one problem, in neglect of the multiple difficulties many of these youths are simultaneously experiencing, are likely to fail. These issues present a formidable challenge to service providers to develop more relevant, deeper reaching, continuous, effective intervention strategies, if they hope to redirect the lives of these youths, and perhaps their counterparts in other detention settings, in more salutary directions.

Our chances of intervening successfully with the users of marijuana/hashish, which is a gateway drug to the use of other illicit drugs (Single, Kandel and Faust, 1974), are greater than with the users of other illegal substances. Early intervention with marijuana/hashish using youths can be expected to be less costly and of shorter duration, than with the users of cocaine. (A paper reporting these results [see Appendix B for a copy] has been accepted for publication in the following book: Ronald L. Taylor (ed.) Black Youth in America: Assessment of their Social and Economic Status (tentative title), Beverly Hills: Sage.)

The Relationship Between Cocaine Use, Drug Sales and Other Delinquency Over Time

A second paper we prepared in addressing Research Question #6 involved examination of a structural model of the relationships of the youths' cocaine use, self-reported involvement in drug sales and other delinquent behavior (general theft, index offenses and crimes against persons) over time.

The data set we examined is particularly important in addressing this research question. Many of the youths were in a transition state as far as their use of cocaine was concerned. The rate of urine test cocaine positives (using the EMIT R procedure) more than doubled during the follow-up period.

Figure 3 illustrates the three parallel structural models we examined for the three categories of delinquent behavior. Consistent with the relevant literature, the model represents the youths' cocaine use and drug sales as distinct, but interrelated, experiences at each time period covered by the study and over time. In particular, cocaine use, drug sales and other delinquent behavior are each specified to relate to themselves over time.

In addition, cross-over effects linking cocaine use at T1 to drug sales and other delinquent behavior at T2, and connecting drug sales at T1 to cocaine use and other delinquency at T2, are hypothesized. This set of expected relationships reflects the literature indicating a drugs-crime connection among high risk youths who are involved in cocaine use. Again, 201 youths from whom we obtained urine specimens at the initial and follow-up interviews were involved in these analyses.

Estimation of the structural model was by weighted least squares (WLS), as implemented by LISREL-7. As discussed earlier, use of the WLS method is advantageous with ordinal or dichotomous level data because it produces robust chi-square fit statistics and correct standard errors for parameter estimates even though the normality assumptions are often violated.

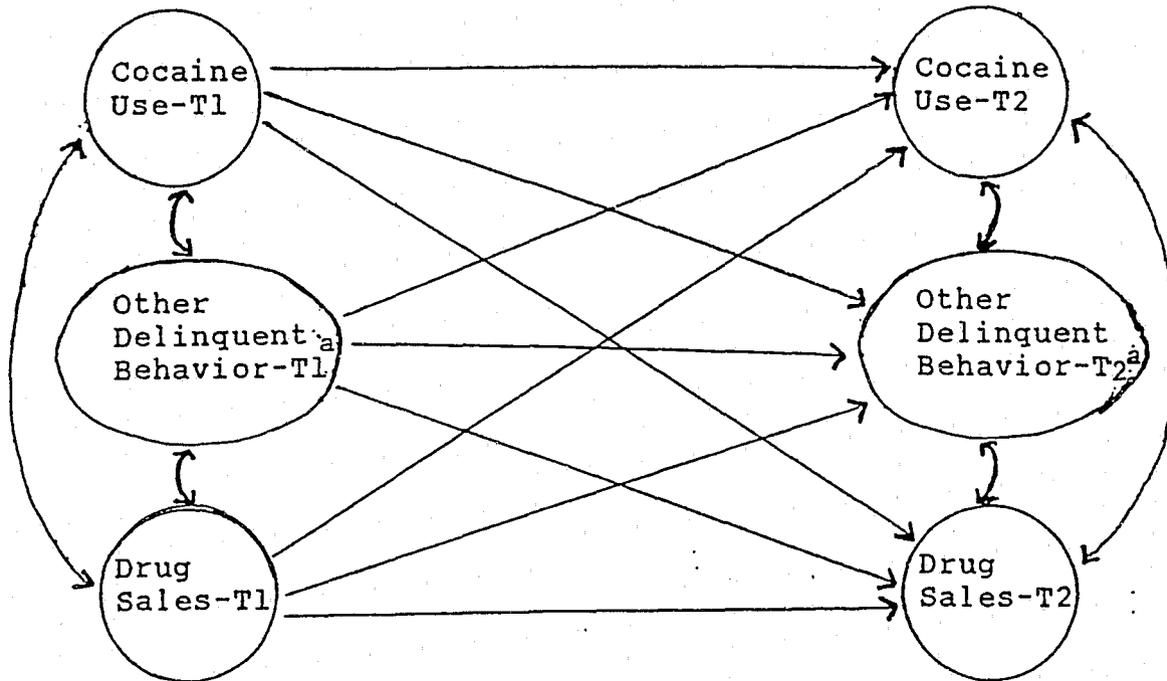
We measured cocaine use by self-reports and EMIT R urine test data. However, preliminary analyses indicated a race effect in the drug use information. White male youths reported more frequent use of cocaine at the time of their initial interviews and during the follow-up period, whereas black males had a higher urine test cocaine positive rate at initial interview and follow-up interview. Further, 69 percent of the white males found to be urine positive for cocaine at follow-up interview, compared to 39 percent of the black males, reported they had used cocaine one or more times during the follow-up period. In view of these results, and the greater validity associated with the urine test findings compared to self-reported cocaine use, the structural model was estimated using the urine test results as the only indicator of cocaine use at the initial and follow-up interviews.

Results

Overall, the hypothesized model of the relationships between cocaine use, as measured by urine test results, drug sales and other delinquent behavior over time was consistent with the data. A significant, positive relationship was found between engaging in drug sales in the year prior to first interview and during the follow-up period; and being involved in drug sales in the year prior to initial interview and during the follow-up period was significantly and positively related to engaging in general theft and index offenses during each time period. In addition, crimes against persons were significantly and directly related to engaging in drug sales during the twelve months preceding initial interview and during the follow-up period; and person crimes at Time 1 were indirectly associated with cocaine use at follow-up interview through reported drug sales at Time 1 and during the follow-up period.

FIGURE 3

MODEL OF THE RELATIONSHIP BETWEEN COCAINE USE, DRUG SALES AND OTHER DELINQUENT BEHAVIOR OVER TIME



NOTE:

- a. Refers to self-reported participation in index offenses, general theft crimes or crimes against persons.

Importantly, participating in drug sales in the year prior to initial interview was significantly and positively associated with being urine positive for cocaine at the time of follow-up interview. This finding suggests that involvement in drug distribution is an activity at high risk of resulting in a deepening, personal involvement in cocaine use over time. This process appears to be more powerful among the male youths in our study, than the females. The urine test cocaine positive rates for the females in our study were similar at the initial and follow-up interviews (11% and 15%, respectively). On the other hand, the male youth cocaine positive rate more than doubled between the first and second interviews (8% vs 21%, respectively).

However, our data suggest that, as the youths became more enmeshed in drug sales, they became personally involved in the use of the cocaine. Our results indicate that this is a major dynamic for the white males in our study. Ease of access to the drug and the pressures of the street-drug life probably play key roles in this process. In addition, further analysis showed the use of crack cocaine became more popular between the youths' initial and follow-up interviews.

Race was not found to affect the pattern or magnitude of the relationships. Further, the relationships among the variables in the model were similar across the two groups--with one important exception. Involvement in drug sales in the year preceding initial interview was more strongly related to being urine positive for cocaine at follow-up interview for the white males, than the Black males. This finding points to an important topic for further research: the similarities and differences in cocaine--crime relationships over time for White and Black youths and other minorities.

More studies, involving youths of different ethnic, gender and socioeconomic groups in different regions are needed to assess the generalizability of our findings and the structural model we tested. Research is particularly needed among high risk youths, such as juveniles entering detention centers.

Policy Implications

The persistence of relationships between drug sales and cocaine use over time among the youths we studied is disturbing, and raises important policy issues. First, the data we have collected on these 201 youths indicate that many needed serious treatment intervention--especially to address their substance use difficulties. However, very few of them received such help for any length of time during the follow-up period. Only 14 percent of the youths reported receiving any treatment for an alcohol or other drug misuse problem during the follow-up period. Among the 18 percent of the youths who were referred for evaluation for alcohol or other drug misuse treatment, only 22 percent reported receiving any treatment of this sort during the follow-up period. In addition, there were very few treatment program slots for adolescents in the community--particularly those in the public sector.

Second, the youths we studied became involved in drug sales for a variety of reasons. Social policy needs to be informed by these

differences in experiences if effective intervention is to be made with this problem. Many youths in our project found the drug business attractive as a lifestyle in the classic Preble and Casey (1969) sense. That is, the drug subculture provided a feeling of excitement revolving around the experiences of hustling, "ripping and running" and the "cops and robbers" nature of the street life. Drug sales, particularly crack sales, are very seductive. There is a great demand for crack cocaine, the profits are considerable and the drug business provides for upward mobility in a career line (cf. Inciardi and Pottieger, in press). For these youths, there are no other viable options for "making it" in their milieu.

Another group of youths in our study regarded the drug business as a risky, but profitable way to survive (by which they usually mean a way of life which provides an income permitting them to meet their material and status needs) in their environment. Having limited educational skills, few employment skills, and yet needing to satisfy their personal and family's needs for food, shelter and material comforts, these youths are vulnerable to becoming involved in drug sales. Many youths realize that, if they are arrested on a felony drug charge on more than one occasion, they may spend time in a commitment program or, as is increasingly the case, be direct filed to adult court for prosecution. Further, many of these youths regard drug sales as a tough job--requiring vigilance against competitors and the youths who may sell drugs for them. Yet, in balance, these risks are perceived to be acceptable in the face of the paucity of alternate, socially and personally salutary options in their lives. Developing a point Brunswick (1988) first made in the context of her discussion of drug use among young black males, we must make meaningful, economically rewarding job training and counseling available to these youths. Otherwise, as Brunswick (1988:184) so effectively described the situation:

. . . they must continue to listen to the beat of a different drummer and to look for alternative activities and experiences to attempt to satisfy what they share with all young people--needs for growth and self-actualization, for affiliation, for respect from others, for social belonging, and basic to all of these, for a source of material sustenance.

(A paper reporting these results [see Appendix C for a copy] has been accepted for publication in a monograph on Drugs and Violence to be published jointly by the National Institute of Justice and the National Institute on Drug Abuse.)

The Generality of Deviance

A third paper we prepared in addressing Research Question #6 involved examination of a structural model separating general and specific deviance components of the deviant behavior of the youths in our project. In a previous analyses of data collected on youths in the general population, Osgood, Johnston, O'Malley and Bachman (1988) found that, while sizable generality and longitudinal stability of deviance existed in the data, a considerable proportion of the stable systematic

variance of the separate deviant behaviors could not be explained by a single concept of general deviance. The researchers concluded that both the general and specific aspects of deviant behavior need to be incorporated into a general theory of deviance. The analyses reported by Osgood, Johnston, O'Malley and Bachman (1988) address an important theoretical issue. Much previous work examining the interconnectedness of alcohol, other drug use and delinquent behavior among youths led researchers to conclude that these behaviors are manifestation of a general tendency toward deviance -- and that specific causes for particular forms of deviance are relatively unimportant.

The important findings of Osgood, Johnston, O'Malley and Bachman (1988) needed to be replicated. Osgood et al.'s (1988) analyses were limited to white respondents, excluded high school dropouts (which previous research has found to be more involved in drug use than students who remain in school [Kandel, 1975]), involved older aged person (data were obtained when the subjects were 18, 19 and 21 years of age) and was limited to self-report data on alcohol and other drug use. It is particularly important to replicate this work among youths entering the juvenile justice system who have high prevalence and incidence rates of various forms of deviant behavior.

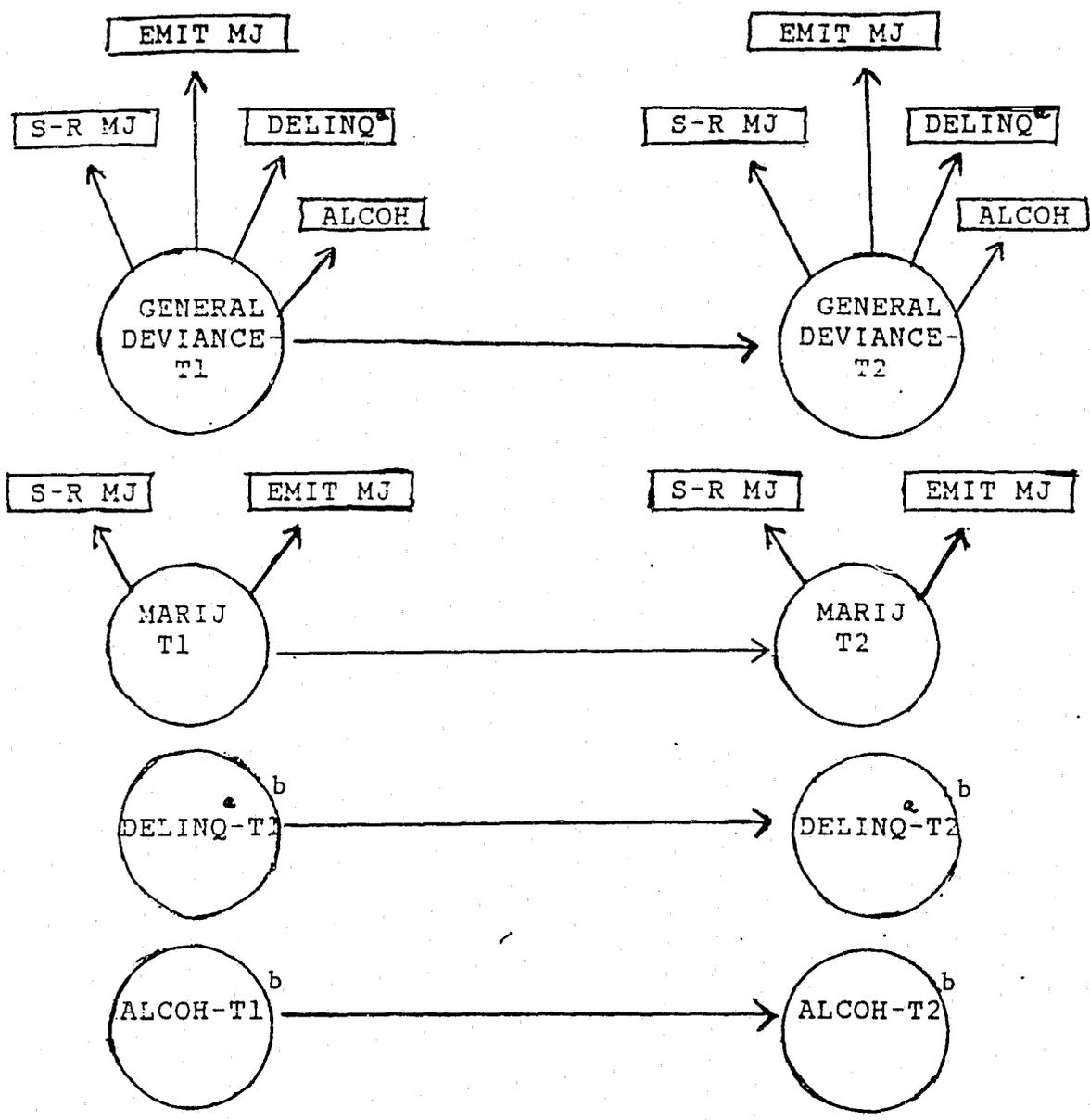
This is the purpose of the analyses we pursued. We tested the structural equation model, shown in Figure 4, separating general and specific components of deviant behavior on data collected on the youths involved in our longitudinal study. Other important features of our analyses were: 1) their inclusion of five self-report delinquency measures (general theft crimes, index offenses, crimes against persons, drug sales and an index of total delinquent behavior) and 2) the use of both self-report and urine test results to measure the youths' use of marijuana/hashish. As was the case for the analyses reported in the two previously discussed papers addressing Research Question #6, the 201 youths from whom we obtained urine specimens at the initial and follow-up interviews were involved in these analyses.

The structural model included stable general and specific factors existing over time. In particular, the general deviance factor, and the specific deviance factors of marijuana/hashish use, self-reported delinquency and alcohol use are specified as autoregressive variables. This model specification is reflective of the literature documenting the persistence of the use of marijuana/hashish and participation in delinquent behavior. Although the model did not allow for any influences between the different forms of deviance at Time 1 and Time 2 or across time, examination of the fit of the model to the data would suggest any need for specifying within wave relationships among the specific factors or longitudinal influences between them. As was the case with our previous structural analyses, estimation of the model was by weighted least squares (WLS), as implemented in LISREL-7.

The results of our examination of the model of general and specific deviance led to the conclusion that, with one exception, each behavior was, in part, a manifestation of a general tendency towards deviance and, in part, a unique phenomenon. Alcohol use was the exception to this conclusion. This behavior, which was moderately to highly loaded on the

FIGURE 4

STRUCTURAL MODEL OF GENERAL AND SPECIFIC DEVIANCE RELATIONSHIPS OVER TIME



Notes: S-R MJ=Self-reported marijuana/hashish use
 EMIT MJ=EMIT[®] urinalysis test results for cannabinoids
 DELINQ=Self-reported delinquency^a
 ALCOH=Self-reported alcohol use

- a. The self-reported delinquency scales include (1) general *theft* crimes, (1) index offenses, (3) crimes against persons, (4) drug sales offenses and (5) total delinquency.
- b. These factors are single indicator constructs reflecting the stable specific variance of each respective measure.

latent variable of general deviance at Time 1 and Time 2, did not show a stable specific variance across the two time periods. Clearly, theoretical explanations which rely on a general disposition towards deviance to account for these behaviors among the youths we studied will fall short of accounting fully for specific deviant behaviors -- although they may explain much of each of them. These findings are similar to the results uncovered by Osgood, Johnston, O'Malley and Bachman (1988), and expanded their generalizability to the high risk youths in our study.

At the same time, the results of our analyses increase the scope of the findings of Osgood, Johnston, O'Malley and Bachman (1988) in several ways. Our results were not found to be affected by the youths' gender or race, and were similar across the five summary measures of delinquent behavior. Further, the youths included in our analyses were younger than those studied by Osgood et al. (1988); many had considerable academic and behavioral difficulties in school, and their juvenile court referral histories and self-reported delinquency indicated high prevalence and incidence rates of criminal activity.

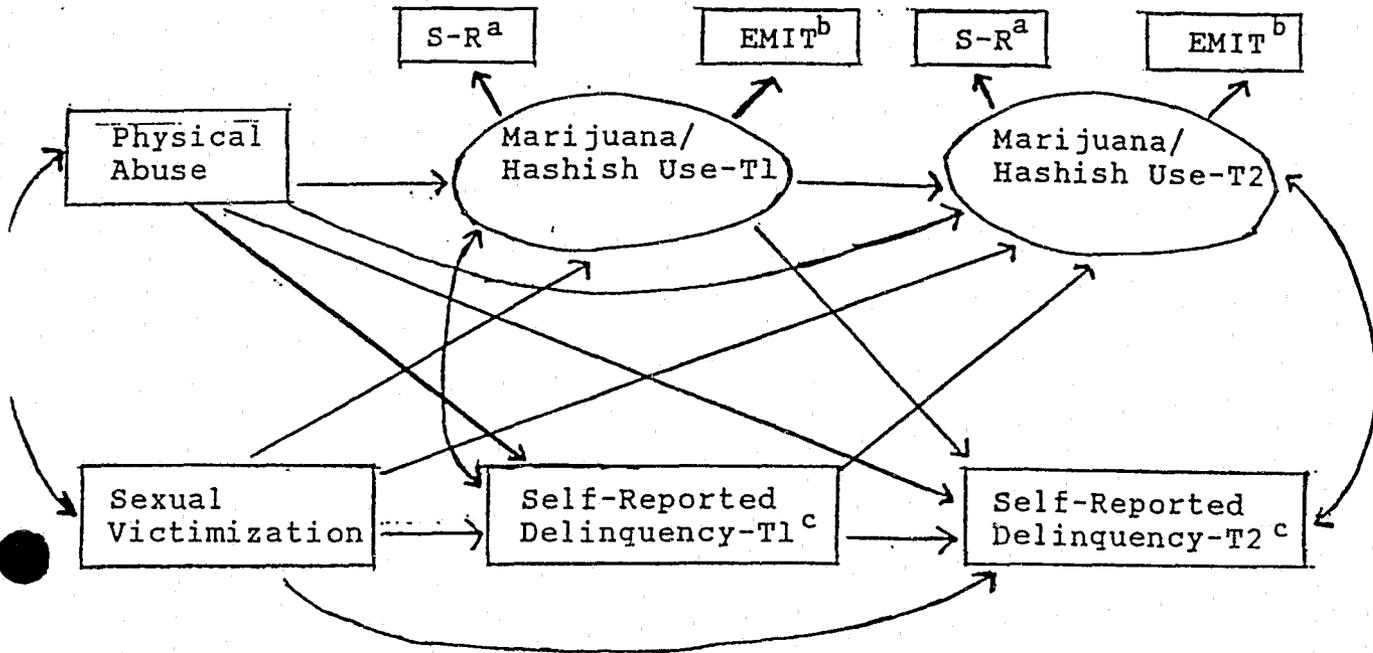
The inclusion of both self-report and urine test measures of marijuana use in our analyses indicated the self-report measure was loaded highly on the general deviance construct, whereas the urine test result was the highest loaded variable on the marijuana/hashish use, specific deviance factor. These different loading patterns suggest that the self-report measures of deviance reflect a tendency toward self-disclosure, which accounts for part of the covariance among these measures. In addition, the urine test results, which are highly correlated with the self-report measures, reflect a different aspect of individuals' relationship to marijuana/hashish. The self-report measure captures frequency of marijuana/hashish consumption, whereas the EMIT R test reflects recent use of the drug relative to body mass. These findings indicate that both types of measures should be included in studies examining the causes, correlates and effects of the use of this substance. It would be important to explore this matter further among different samples of youths and adults. (A paper reporting these results [see Appendix D for a copy] is currently under review for publication in Criminal Justice and Behavior.)

The Relationship Between Physical Abuse, Sexual Victimization, Marijuana/Hashish Use and Delinquency Over Time

The fourth and final paper we prepared in addressing Research Question #6 involved examination of the structural model shown in Figure 5. The model depicts hypothesized relationships among the youths' physical abuse and sexual victimization experiences, their marijuana/hashish use (measured by self-report and urine test data) and self-reported delinquent behavior (theft crimes, index offenses, crimes against persons, drug sales and total delinquency) over time. The model represents our continuing effort, based on previous cross-sectional investigations of different samples of juvenile detainees (Dembo, Dertke, La Voie, Borders, Washburn and Schmeidler, 1987; Dembo, Williams, La Voie, Berry, Getreu, Wish, Schmeidler and Washburn, 1989) to explore a developmental damage view of the role of child maltreatment on their illicit drug use and other delinquent behavior. As was the case for the

FIGURE 5

STRUCTURAL MODEL OF THE RELATIONSHIP BETWEEN PHYSICAL ABUSE,
SEXUAL VICTIMIZATION, MARIJUANA/HASHISH USE
AND DELINQUENCY OVER TIME



NOTES:

- a. S-R=self-reported drug use
- b. EMIT=EMIT[®] urinalysis results
- c. The self-reported delinquency scales are:
(1) index crimes, (2) general theft crimes,
(3) crimes against persons, (4) drug sales
and (5) total delinquency

other structural analyses we completed in addressing this research question, we examined data on the 201 youths from whom we obtained urine specimens at the initial and follow-up interviews.

Consistent with the relevant literature, the model represents the youths' physical abuse and sexual victimization experiences as distinct and mutually related, antecedent influences on their marijuana/hashish use and delinquent behavior over time. (Marijuana/hashish use was measured at the initial interview by self-reported lifetime use and by urinalysis, reflecting immediately prior use. Therefore, marijuana/hashish use was interpreted as comparable in time to delinquency in the preceding year.) Further, the youths' marijuana/hashish use and other delinquent behavior are specified as interrelated experiences at each time period covered by the study and over time. In particular, marijuana/hashish use and delinquency are each specified to relate to themselves over time. This model specification is reflective of the extant literature documenting the persistence of the use of illicit drugs and participation in delinquent behavior.

In addition, cross-over effects linking marijuana/hashish use at T1 to delinquency at T2, and connecting delinquency at T1 to marijuana/hashish use at T2, are hypothesized. This set of expected relationships reflects the literature indicating a drugs-crime connection among high risk youths who are involved in marijuana/hashish use.

Results

Overall, the hypothesized model of the relationships between physical abuse, sexual victimization, marijuana/hashish use and delinquent behavior over time was supported by the data. Further, the coefficients of determination (analogous to the squared multiple correlation of least squares solutions) for the various analyses (i.e., general theft crimes, drug sales, index offenses, crimes against persons and total delinquency) indicate the model accounts for a respectable amount of variance in the data.

Although some differences were found in the magnitude of relationships among the variables in the model between the black and white male youths, there were many similarities in the interrelationships among the variables. As far as gender specific behavior is concerned, we were able to find some differences in mean level or prevalence rates for several variables (with males having higher rates). However, there were many similarities between the male and female youths in the patterns and strength of association among the variables in the model.

Our findings that the youths' marijuana/hashish use and delinquent behavior persisted over time is consistent with the results Kandel, Simcha-Fagan and Davies (1986) and Elliott, Huizinga and Ageton (1985) obtained in their research. Similar to Kandel, Simcha-Fagan and Davies (1986), we found a higher magnitude of relationship to exist in the youths' marijuana/hashish use over time, than in their delinquent behavior. In contrast to Kandel, Simcha-Fagan and Davies' (1986) results, we did not find any statistically significant marijuana/hashish use--delinquency cross-over effects. This situation may, in part, be a

consequence of the extremely high autoregressive effect between marijuana/hashish use, and, secondarily, delinquency and reflect the fact that our sample of juvenile detainees is very different from the youths in the general population Kandel and her associates surveyed.

Relatedly, and in contrast to previous (especially cross-sectional) research, the results of our structural analyses indicate little coterminous relationship between marijuana/hashish use and self-reported delinquent behavior. However, by their design, cross-sectional studies omit prior behavior as a determinant of future behavior; and, typically, produce inflated estimates of the correlation between drug use and delinquency. The results of our longitudinal analyses highlight that current behavior is best predicted by past behavior; and, the magnitude of these autoregressive effects is very high.

Our findings are consistent with those from the growing number of research studies which have identified the physical and sexual victimization experiences of young people as severely traumatizing events which significantly influence their development of troubled life styles (see: Widom, 1989). Further study of our data indicated that the influence of physical abuse and sexual victimization on the youths' marijuana/hashish use and delinquent behavior during the follow-up period operated primarily through their affect on these behaviors at Time 1.

It is important to note that physical abuse was significantly related only to more serious index offenses or crimes against persons, and not to the youths' marijuana/hashish use at either time period. These effects may reflect the fact that the experience of physical abuse is highly traumatizing to adolescents, increasing their likelihood of engaging in serious offense behavior. Previous work has indicated that child victims of physical abuse often perceive themselves as bad, worthless and deserving of the punishment they have received (Garbarino and Gilliam, 1980; Green, 1981). Further research is needed on this issue.

It would be important to replicate our findings among comparable samples of high risk youths of different ethnic, gender and socioeconomic groups living in various regions. Youths entering juvenile detention centers represent an important target group for study because many of them are likely to move into the adult justice system unless they are involved in effective intervention programs.

Our findings that physical abuse and sexual victimization predict initial delinquent behavior among the select sample of high risk youths we studied, and have no additive predictive power for subsequent delinquent behavior, have important theoretical implications. Conceptually, these results provide further evidence in support of a developmental damage view of high risk youths' involvement in drug use and other delinquent behavior. We hope these consistent findings across different data sets and over time will encourage other researchers to study these issues further.

In terms of practical implications, the above noted results suggest the potential value of pursuing early intervention programs for the juvenile detainees we studied, and perhaps their counterparts in other

settings. Physically abused or sexually victimized youths and their families could be made the focus of intervention efforts designed to address the multiple problems they often experience -- before patterns of deviant behavior become established parts of the life styles of these youths. Hopefully, the growing body of research findings in this important topic area will lead to the development and evaluation of prototype early intervention programs. Such efforts hold promise of establishing procedures to identify high risk youth at a sufficiently early period in their lives to foster their growth in more salutary directions. (A paper reporting these results [see Appendix E for a copy] has been accepted for publication in Violence and Victims.)

Answering Research Question #7

Research Question #7: How do the youths' educational experiences relate to their behavior in the community? How are the youths' relationships with the juvenile justice system associated with their activities and performance in school?

The Relationship Between the Youths' Educational Experiences and Their Alcohol/Other Drug Use and Delinquency/Crime

Numerous studies involving youths from the general population as well as official delinquents have documented the influence of educational factors in the development of patterns of alcohol/other drug use and other delinquent behavior. The research literature indicates that youths who perform poorly in school and show a lack of commitment to education are more likely to engage in antisocial activities (Hirschi, 1969; Elliott, Ageton and Canter, 1979; Elliott, Huizinga and Ageton, 1985; Newcomb and Bentler, 1988).

The following educational factors have been consistently identified as placing youths at high risk of alcohol/other drug use and delinquent behavior: (1) low scores on scholastic aptitude tests, (2) low school grades, (3) retained in grade, (4) placement in a special or remedial education program, (5) poor attendance and (6) dropping out of school. Research also shows that youths experiencing problems in one of these areas are likely to experience difficulties in others (Jessor and Jessor, 1977); and these educational deficits are likely to be cumulative over time (Lazar, Darlington, Murray, Royce and Snipper, 1982).

Further, as G.D. Gottfredson (1988) argues, the youths' traits interact with their environmental circumstances in influencing their learning and regulating their behavior. Inner-city youths, who are overrepresented in the juvenile justice system, are at considerable risk of experiencing educational problems. These youths often fail in school because, among other things, they come to school poorly prepared for classroom instruction; have parents who are indifferent to education; may be the offspring of teenagers who are ill equipped for parenting; may have learning disabilities, physical handicaps or emotional problems; and may experience ethnic or racial prejudice (Research and Policy Committee of the Committee for Economic Development, 1987).

The longitudinal data we collected on the youths' involved in our

study provided an opportunity for us to examine the relationship between their educational experiences and their alcohol/other drug use and other delinquent behavior over time. As part of the project, the youths were asked about their educational experiences at their initial interviews and their follow-up interviews 10 to 15 months later. In addition, extensive official record information on the youths was collected from various schools they attended in different states and throughout the state of Florida.

Regression analyses were first performed on the 201 youths from whom we collected urine specimens at the initial and follow-up interviews. In addition, we pursued regression analyses on the youths' self-reported delinquency and alcohol use during the follow-up period, involving all youths with whom we completed both initial and follow-up interviews -- excluding those who were incarcerated or in another secure facility during the entire follow-up period. Most of the additional 95 youths in these analyses (n=296) were incarcerated at the time of their follow-up interviews.

We were particularly interested in determining, through stepwise regression analyses, whether the youths' educational experiences predicted, separately, their alcohol, marijuana/hashish or cocaine use, and their self-reported delinquent behavior (general theft, crimes against persons, index offenses, drug sales and total delinquency) -- after controlling for their demographic (age, gender, ethnicity and family socioeconomic status) and referral history characteristics, their Time 1 data on sexual victimization, physical abuse, emotional/psychological functioning, alcohol and other drug use and self-reported delinquent behavior during the year preceding their initial interviews. A variety of official record and self-reported educational information was used to measure the youths' experiences in school. These prefollow-up period educational measures included the following self-report and official record data:

Self-Report at Initial Interview:

- Ever expelled or suspended from school
- Ever repeat a grade
- Ever placed in a special education program
(based both on official record and self-report data)

Official Record Data:

- Total battery score on a standard achievement test (the Comprehensive Tests of Basic Skills [CTBS]) probing performance in reading, language and math
- Academic grade point average
- School attendance data were used to create a measure reflecting the number of consecutive years the youths were not in school in the four years preceding the follow-up year.

Strategy of Analysis

For each analysis, the various predictor variables were introduced in historical order. In general, the youths' demographic variables (age

at initial interview, gender, ethnicity and occupational status of household head/income source at initial interview) were first entered as a set into each analysis. After these variables, the following lifetime history variables were introduced into the analysis: history of referrals to juvenile court, self-reported physical abuse and sexual victimization, lifetime self-reported use of marijuana/hashish and cocaine and self-reported alcohol use. Variables reflecting more recent history: self-reported delinquency in the year prior to initial interview, were next entered into each analysis. These factors were followed by variables referring to the period immediately before and shortly after entering the detention center: the charge/reason for being placed in the detention center, EMIT R test evaluation of the recent use of marijuana/hashish and cocaine and emotional/psychological functioning problems as measured during the youths' initial interviews. The youths' self-reported and official record educational information were next introduced into each analysis.

Although the above sequence ordering of variables applied generally, exceptions were made for predictors that were intrinsically associated with the dependent variable being studied. Such predictor variables were inserted at the end of the entry sequence, so that an assessment of their predictive efficacy could be made which controlled for the effect of all other predictor variables. For example, when predicting general theft during the follow-up period, the number of referrals for theft to juvenile court prior to initial interview, theft reason for placement in the detention center at the time of initial interview and self-reported general theft in the year prior to initial interview were, respectively, the last three variables entered into the analyses.

Similarly, when predicting EMIT R test evaluation of marijuana/hashish (cannabinoid) use at follow-up interview, lifetime self-reported marijuana/hashish use and the results of the EMIT R test probing the recent use of cannabinoids at initial interview were inserted in the analysis after the other variables. A similar logic was followed in the analysis predicting cocaine use at follow-up interview. Previous analyses (Dembo, Williams, Wothke, Schmeidler, Getreu, Berry, Wish and Christensen, in press) indicated that the youths' involvement in drug sales in the year prior to their initial interviews was significantly related to their use of illicit drugs during the follow-up period. Accordingly, the youths' self-reported involvement in drug sales prior to first interview was inserted as one of the last predictor variables in the analyses involving marijuana/hashish and cocaine use at follow-up interview.

Results

The results of the analyses show clearly that the various measures of the youths' educational experiences were not significantly related to their alcohol, marijuana/hashish and cocaine use and to their self-reported delinquent behavior over time. In addition, the educational experience factors generally have low to near zero magnitudes of association to the alcohol/other drug use and delinquency variables. Given the literature on this topic, these findings seem surprising.

However, it must be pointed out that, compared to similar aged youngsters in the general population, the youths in our longitudinal study are an extreme group in regard to their background experiences and behavior in the community. For example, about a quarter of the youths had been referred to juvenile court for neglect or physical abuse; they reported high rates of sexual victimization or physical abuse; they had extensive contact with the juvenile court for delinquent behavior; and they had high rates of drug use as determined by self-reports and urine test results.

Further, the educational data used in the analyses indicated poor performance in, and weak commitment to, school. In particular, it is important to note that the youths' school grade level lagged two years behind their average age at the time of their initial interviews. Moreover, their CTBS scores were two years behind their actual grade level! These data reflect a significant educational deficit among these youths.

According to our results, the youths we studied are at the tail ends of skewed distributions of both delinquency (including drug use) and educational performance/activities. The relationships between the educational experience factors and the delinquency/drug use variables for this extreme group are not systematic, and do not follow the patterns reflected in the general population.

Study of both self-reported and official record educational information on the youths, together with the results of the multivariate analyses, present a picture of a cohort of youths who: (1) were deeply disaffiliated from school when we first interviewed them and (2) became further alienated from school during the post-initial interview period. Their experiences provide a poignant picture of the inability of the educational system to address their needs at an early enough point in their lives to reinforce their bonding to conventional society; and point to an important juncture for constructive intervention.

Our results, together with conversations with school personnel, indicate that the personal and family difficulties of the youths in our project, and an overburdened and underresourced educational system, account for the dismal educational portrait that emerges from these data. Although the youths in our project displayed difficulties in school at an early age, school officials were not equipped to work with these youngsters and their families in the intensive, prolonged fashion needed to improve the youths' educational prospects. Youths who were consistently absent from school were infrequently reinvolved in school. Absenteeism is primarily responsible for the fact that total battery CTBS scores were available for only 57 percent of the youths.

Of course, the families of many of the youths present a formidable challenge to educational institutions. They move frequently within and outside of the school district; often are experiencing socioeconomic and emotional/psychological functioning difficulties; and many families are not always supportive of their childrens' development or receptive to working with educational personnel. Yet, our previous work (Dembo, Williams, Schmeidler, Getreu, Berry, Genung, Wish and La Voie, in press;

Dembo, Williams, Wish and Schmeidler, 1990) suggests early intervention with these youths has the potential of fostering their growth in socially responsible ways. To continue to neglect to involve the school in this task will merely perpetuate the educational failure and attendant personal and social problems being experienced by the youths in our project, and their counterparts elsewhere. What we need are social policies and programs which involve the schools in an important and prolonged way.

We had also hoped to examine a number of structural models involving linkages among the youths' educational experiences, their alcohol, marijuana/hashish and cocaine use and self-reported delinquent behavior over time. However, the low magnitudes of relationship between the education variables and the alcohol/other drug use and delinquency factors precluded meaning of study of these models.

A paper reporting these results appears in Appendix F. Our findings are to be incorporated into a monograph chapter we are planning to write for the U.S. Department of Education.

Preparation of Special Products and Reports for Juvenile Justice Practitioners

Based on the experiences resulting from our work at the Hillsborough Regional Juvenile Detention Center since 1984, and the findings of the current project, we produced several special products/reports during our third year. These products/reports, which are targeted to practitioners in the juvenile justice field, include the following:

1. Development of a screening protocol to be used in the screening/triage process.
2. A supplemental manual, discussing the development of various procedures for linking troubled youths and their families to relevant community agencies.
3. A procedures manual documenting how to establish and maintain a screening/triage unit at a juvenile detention center, involving urinalysis and the collection of other important information on detained youths.

Each of these documents is summarized briefly below. A copy of each product/report appears in the appendix section.

Prototype Screening/Triage Form for Use in Juvenile Detention Centers

Based on our work at the Hillsborough Regional Juvenile Detention Center (HRJDC) since 1984, and the experiences gained performing screening/triage activities at the HRJDC since 1985, we developed a prototype form for use in detention centers. The form, which appears in Appendix G, obtains information in the following areas: 1) admission and demographic data, 2) education and employment, 3) home/living situation, 4) other personal information, 5) alcohol/other drug use, 6) sexual abuse

history, 7) physical abuse history, 8) family history, 9) psychological/medical history, 10) mental health information, 11) case record/folder information (data on being a victim or perpetrator of physical or sexual abuse and offense history). The form also includes a summary of findings and recommendations section. With the approval of OJJDP in March 1990, the form will appear in a forthcoming monograph on assessment instruments, which is being prepared by NASADAD.

A Supplemental Manual Discussing How to Link
Troubled Youths and their Families with
Community Service Agencies

Once it has been determined that a detained youth has an alcohol, other drug use or mental health problem needing assistance, there is the important matter of linking that youth and his/her family with relevant community agencies. Based on our work at the HRJDC, we prepared a manual on this topic ("Linking Troubled Youths Entering Detention Centers and their Families with Community Service Agencies"). The manual, which appears in Appendix H, covers the history, recent operating procedures and experiences of the CANTY (Coordinating Assessed Needs of Troubled Youths) program we developed in Tampa. We believe this program has merit for serious consideration for adoption by other communities seeking ways to connect troubled youth with community based treatment services.

A Procedures Manual on Establishing and Maintaining a
Screening/Triage Unit at a Juvenile Detention Center

Based on our work at the HRJDC since 1984, and the experiences gained from work on the current project, we produced a manual documenting how to put in place and maintain an effective screening/triage unit at a detention center ("Setting Up a Screening/Triage Unit at a Juvenile Detention Center"). The following topics are covered in the manual, which appears in Appendix I: 1) the need for establishing and operating a screening/triage unit, 2) preliminary considerations in setting up a screening/triage unit, 3) information to collect during the screening/triage process (including testing for drug use), 4) the intake process and selecting youths to screen, 5) deciding to refer a youth for further mental health, alcohol or other drug abuse evaluation and 6) placing troubled youths in needed services.

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